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ABSTRACT

This report presents a comprehensive discussion of issues affecting the use of ethnographic research methods in bilingual education classroom research. Quantitative methods alone have not provided an adequate understanding of how the bilingual classroom operates, the meaningful features of the classroom, how children learn, and what cultural/community contexts affect that learning. Issues covered include (1) the scope of an ethnographic approach, (2) methodological issues in dealing with ethnographic information, and (3) implications and suggestions for applying ethnographic methods in future bilingual education research. Appendices present the goals, attendees, and agenda of the Conference on "Current Issues in Applying Ethnographic Methods to Bilingual Classroom Research" (1980) and an inventory of variables relating to bilingual classrooms. Charts discuss (1) the methodological characteristics of ethnographic and quantitative approaches, (2) technical equipment in ethnographic field work, (3) the contributions of videotape, (4) selected applications of videotape recording in classroom settings, (5) a summary of considerations for determining observer agreement and reliabilities, (6) a sample prose protocol of a classroom microethnographic study, and (7) a framework for symbolic interaction research. (JK)

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PLANNING PAPER 6:

ISSUES IN APPLYING ETHNOGRAPHY TO BILINGUAL CLASSROOM SETTINGS

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FOREWORD

The material in this report is based on: (a) an extensive review of ethnographic and methodological sources related to bilingual education issues, and (b) a conference on current issues in applying ethnographic methods to that domain held at Development Associates on June 24-25, 1980. The list of attendees appears as Appendix 1; the conference agenda and goals appear as Appendices 2 and 3, respectively.

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1.0 INTRODUCTION

This report is the sixth report in a series being prepared by Abt Associates Inc., and its subcontractor, Development Associates, Inc. for the National Institute of Education (NIE) under a "Study Designed to Assist Planning of Research on Significant Instructional Features in Bilingual Education Programs," as authorized by Congress in the Bilingual Education Act, Part C. This particular planning assistance report responds to Task 6 of the planning study, in preparing a comprehensive discussion of issues affecting the use of ethnographic research methods in bilingual education classroom research. That discussion begins below.

Within the recent past, scholars and practitioners in the field of bilingual education have come to be less and less satisfied with the traditional quantitative methods for doing research and the quality of findings arising from such studies. This dissatisfaction is characteristic not only of much bilingual educational research, but of research in education and the social sciences in general. Moreover, it is becoming increasingly clear that what is at issue is not only dissatisfaction with applications of quantitative methods but also a realization of the failure of such methods in many contexts. The results gathered from using such methods have not provided an adequate understanding of how the bilingual classroom "operates," what are its meaningful features, how children learn, and what cultural/community contexts affect that learning. As their dissatisfaction and awareness of the inadequacies have grown, researchers have chosen to employ different methodologies which in theory compensate for some of the inadequacies of quantitative methods. What is clearly at issue here is what Thomas S. Kuhn (1970) has described as a "competition between paradigms," which he also noted"...is not the sort of battle that can be resolved by proof...". Collectively, these other methods are known as qualitative methods. A particular variety of qualitative methods, and the one most frequently applied to research in bilingual education, is the ethnographic method. This approach to conducting research is defined and compared to quantitative research in Chapter 2 of this report. In addition, the issues and domains of classroom instruction to which ethnographic methods have been applied, both in monolingual and bilingual settings are discussed at some length.

The body of literature on the subject of ethnographic method in education, and in particular bilingual education, research and the related area of classroom ethnography has grown to very large proportions within the past two decades (See for example, Paulston, and Smith, in Shulman 1976). Chapter 2 provides a critical review of key works in the field for the purpose of identifying the more important conceptual issues and considerations.

The accumulation of large amounts of comparable data from different sites from which significant generalizations may be made has raised important questions about the most effective, reliable, and expedient procedures and techniques to use in collecting, analyzing, and storing data. Some of these questions, such as the role of mechanical aids or the utility of coding frameworks, have received a great deal of attention and significant progress has been made toward answering them. Other issues await further clarification. The state-of-the-art in this area is discussed in Chapter 3 in the course of a critical review of the literature as it applies to bilingual settings.

The discussion and critical literature review presented in Chapters 2 and 3 are intended to provide the necessary groundwork for future ethnographic investigations of bilingual education in classroom settings. Such research is likely to employ both qualitative and quantitative data, and therefore require methods for merging and analyzing both types of data. Such groundwork is also necessary in order to effectively train classroom ethnographers, focus research on topics suitable for ethnographic investigation, and determine the most appropriate observational, storage, and analytic techniques for ethnographic data.

In Chapter 4, the information contained in the discussions in Chapters 2 and 3 is integrated with a discussion of the proceedings of a conference on the topic of "Current Issues in Applying Ethnographic Methods to Bilingual Education Research," funded under the present subcontract and held on June 24-25, 1980 at Development Associates, Inc., Arlington, Virginia (See Appendices 1-3). The integration provides major implications and suggestions for carrying out sound bilingual educational research using ethnographic as well as quantitative methods.

In general then, this report is intended to be a conceptual and methodological resource for those designing bilingual education research to take place in classroom settings, and a synthesis of the state-of-the-art in that field.

2.0 THE SCOPE OF AN ETHNOGRAPHIC APPROACH

2.1 Its Conceptual Issues

Historically, the ethnographic approach to the study of human behavior was developed by the anthropological subdisciplines of ethnology, ethnography and ethnolinguistics, mainly in the study of non-Western, so-called "primitive" peoples. Subsequently, it came to be viewed as a method in its own right and applicable generally in the social sciences. It is generally felt that the entry of the ethnographic approach to research as an acknowledged method into the other social sciences was marked by the publication of Garfinkel's (1967) studies in ethnomethodology (a particular variety of ethnographic approach coupled with a particular theory). However, there is good evidence that the ethnographic approach had been tacitly employed throughout the histories of the separate disciplines (see O'Keefe 1979). The ethnographic approach goes by a variety of names in the social sciences, each implying a particular variety of this approach, e.g., "qualitative method," "naturalistic inquiry," "legal/judicial model," "phenomenological method," and a great many more.

The question here arises as to why social scientists have increasingly shown preference for this methodology as one way to conduct their research. That is, what can the ethnographic approach to the study of human behavior provide that social scientists feel some other method, such as quantitative methodology, cannot do, or at least cannot do as well?

Responses to this question are manifold and complex. Several responses can be suggested here in regard to bilingual classroom research and a final response clarified by an extended example.

(a) The ethnographic approach is highly appropriate for examining the culturally and linguistically complex phenomena of the bilingual classroom, particularly if the investigators come from a background of ethnography or ethnolinguistics, i.e., when a bilingual classroom is seen as constituting a small-scale languages-in-contact and cultures-in-contact phenomenon; this includes such phenomena as students' contributions to classroom interaction, verbal-nonverbal behavior, relationships of behavior to context, functions of language, and relationships of classroom contexts to the community (Mehan in Trueba et al., 1980).

(b) Bilingual classroom instruction is poorly understood, as is classroom instruction and learning in general; thus an ethnographic approach, because of its orientation toward discovery rather than verification, is especially appropriate.

(c) Quantitative methods are highly inappropriate in examining human behavior in certain instances, i.e., where context is crucial or where too little is known about the subject matter for relevant and valid quantitative measures to be employed. Mehan (in Trueba et al., 1980) provided a number of instances where quantification schemes were useful for tabulating instances of events but not for dealing with the contingent nature of interaction, or with the role of classroom life in the community context.

(d) Ethnographic research enriches the data base by permitting the investigator to observe and take note of the complex interrelationships between the observed behaviors and the sociocultural contexts in which they occur; whereas quantitative measures tend to overly "compress" behaviors and contexts to single, unidimensional scalars which represent a potential distortion of the data base.

For example, if an investigator were to observe six classrooms for one day where in each one, a male student erased the blackboard for the teacher at the end of class, in purely quantitative terms it would have appeared to be six instances of an identical student classroom behavior. However, the qualitative investigator would be forced to pursue the matter further and ask if each instance of blackboard erasure was in fact an example of same behavior or not. Further observation and directed questioning might show that in one classroom the same boy was assigned to erase the blackboards every day, in another each student took turns doing this task, in another the student erased the blackboard that day in order to please the teacher (though normally the teacher did the erasing), in another the blackboard erasing was part of a punishment the student had received for misbehaving, and in the last classroom the student erased the blackboard because he was the last one to use it. Thus, the researcher had observed not six identical behaviors but six very different behaviors which happened to have the same manifestation. (The blackboards were erased by male students.) It is the context in which the behavior occurs which determines the sameness or differentness, and it is this kind of information which ethnographic observation is meant to uncover.

In order to understand how this is possible, it is first necessary to further define what an ethnographic approach is. It is perhaps simplest to do so by examining those characteristics which distinguish it from other, more conventional research methods in the social sciences, collectively known as quantitative methods. Exhibit 1, taken from Jacob (1979, p. 3), suggests the contrasting characteristics of these methods on a variety of pertinent dimensions.

EXHIBIT 1

METHODOLOGICAL CHARACTERISTICS OF ETHNOGRAPHIC AND QUANTITATIVE APPROACHES

Dimensions of Contrast	Approaches to Research	
	Ethnographic	Quantitative
Hypothesis Formulation	Formulated throughout study	Formulated at beginning of study
Hypothesis Reformulation	Open to reformulation	Not open to reformulation
Questions Asked	Descriptive, process	Descriptive, causal
Data Used	Qualitative	Quantitative
Methods of Data Collection	Naturalistic, participant observation, questionnaires experiments, and open-ended interviews.	Nonparticipant observation questionnaires, Experiments
Concern for Context	Central concern (ethnohistorical and immediate)	Minor concern
Approach to Generalization	Non-statistical	Statistical
Concern for Validity	Central concern	Not of central concern
Concern for Reliability	Not of central concern	Central concern
Approach to Meaning	Emic[a] and locally relevant	Etic[b]
Types of Categories Used	Emic[a] and locally relevant	Etic[b]

[a]Emic refers to meanings and categories that are recognized by members of the culture being studied, i.e., the native's viewpoint.

[b]Etic refers to meanings and categories that are imposed upon the culture from outside, usually from a theory or model, i.e., the researcher's viewpoint.

Other distinctive characteristics often claimed for an ethnographic approach versus quantitative methods are more open to question. Thus, for example, it has been claimed that an ethnographic approach is philosophically based in phenomenology, while quantitative methods are grounded in logical positivism (Guba 1978). Others, however, have sought to show that neither of these two methods is critically linked to any one particular philosophical view (See, for example, Tilley 1980). Similarly, there is wide disagreement as to the nature of the conditions under which ethnographically oriented research should take place, ranging from absolute unobtrusiveness of the investigator (Homan 1980, Lofland and Lejeune 1970) to varying degrees of obtrusiveness, ranging up to near intervention (See Bulner's 1980 reply to Homan 1980, and Davis' 1970 comment on Lofland and Lejeune 1970).

Certain comments on the characteristics of an ethnographic approach as presented in the table from Jacob (1979) would be relevant here. For example, ethnographic investigation involves a search for Emic categories and meanings, i.e., those relevant to the population under investigation, rather than taking an Etic approach, i.e., the imposition of features from outside the culture being studied on the research (which is traditional to quantitative research as when a structured questionnaire is used).

The Emic approach is based on the strongly held view that there is no singular reality or value structure within which to describe, analyze and evaluate observed behaviors. For example, Philips (1970), Dumont (1972), and others have noted that silence on the part of American Indian students in bilingual classrooms is not equivalent to silence on the part of students in general American classrooms. Through silence, the American Indians are communicating the incompatibility of the mode of instruction with their culturally based assumptions as to appropriate teaching methods. That is, in many American Indian cultures, education is carried out within a peer/teamwork framework. There are, per se, no instructors, leaders, or other master-like figures. This example is a reflection of the more general approach to social organization among these people (See, for example, Morgan's (1851) classic description of Iroquois social structure).

Silence on the part of students in a general American classroom might also imply that the students were "turned off" by the class, but for different reasons. The American student might be signalling that he/she was having personal or family problems; disliked the subject matter, the teacher, or school in general. However, he/she would not normally be reacting to the very structure of the classroom and the teacher/student relationship, as is the case in the American Indian classroom. Thus, the

significance of silence can only be determined from the viewpoint of those manifesting this behavior, the Emic analysis. This approach is also referred to as cultural relativity, "the attitude that society's customs and ideas should be viewed within the context of that society's culture and environment" (Ember and Ember 1977).

The subject of the "objectivity" of ethnographic inquiry vis-à-vis the objectivity of quantitative research, obtained through the replicability of experiments, use of standardized data collection instruments, etc. has been perhaps the issue of greatest concern in the ongoing debate between proponents of the two different methodologies in the social sciences. Research undertaken using quantitative methods has traditionally been concerned with achieving statistically reliable, replicable and generalizable findings. Ethnographic research, on the other hand, has aimed toward acquiring valid (faithful), rich data and strikingly different analyses, i.e., toward gathering data which allow for: (1) an indepth understanding of behavior and the context in which it occurs from the viewpoint of the culture being studied, and (2) analyses which provide insight into that culture and its relationship to the world-at-large. Ethnographic research has often been criticized for its supposed lack of "objectivity" because of the irreplicability of its results, due to the infinite variations along temporal, contextual and behavioral lines which affect naturalistic observations of real life situations. This view, and the corollary assumption that replicability is the only means to achieve objectivity, have been seriously challenged recently (see Guba 1978, Macnamara 1974, Reichardt and Cook 1977, Rist 1977, Tilley 1980). Objectivity in ethnographic research results not from replication, but, for the most part, from making comparisons of the results of investigations of similar behaviors in similar contexts. Furthermore, recently developed techniques for recording the events observed during ethnographic research, in particular the use of videotapes and other mechanical aids, allow for verification of observations by independent investigators in a way similar to the replication or cross-validation of experiments based on quantitative methodology (See Van Vlack 1966).

2.2 The General Procedures for Carrying Out Ethnographic Inquiry

These are provided in numerous works on the subject (See, in particular, Spradley 1979, and Smith 1975, and with reference to linguistic research, Samarin 1967). The essentials of all ethnographic observation (ethnographic field work) are that: (1) the investigator go to the environment where the behavior to be studied occurs naturally (e.g., if one wished to study teacher behavior as it relates to bilingual instruction in formal classroom settings, one would go to real, established

classrooms where bilingual instruction was taking place). (2) The investigator must be as unobtrusive as the formal ethics of the discipline and his/her own personal ethics will permit in order to not distort the situation being observed by inducing artificial, contrived behaviors on the part of those being observed (See Campbell 1979). The investigator is generally given great leeway in interpreting the appropriate degree of obtrusiveness with regard to personal ethics (See, besides Homan 1980 and Bulner 1980, Barnes 1977, and Rynkiewich and Spradley 1976). (3) The investigator, as information on observed behaviors accumulates, asks leading questions, or otherwise structures the situation, in order to acquire additional information about specific behaviors. For example, having noticed that a teacher wrote comments on a bilingual student's paper in the student's native language, the researcher might inquire of the teacher or students whether this was done for all of the students or only for some, or the investigator might purposely try to see other students' graded papers in order to see the language used in making the comments.

2.3 Ethnography in School-Classroom Research

As with other social science disciplines, education has witnessed a proliferation of inquiries and investigations of educational behavior employing the ethnographic approach (See, for example, Feinberg 1977, Garfinkel 1967, Herriott 1977, Lutz and Ramsey 1974, Wolcott 1967). A central issue of such research has been the investigation of teacher/pupil behaviors in school classrooms. For example, Philips (1970) and Dumont (1972) have conducted extensive work on the relationship between American Indian expectations regarding leadership in education, where they found that silence on the part of students was a product of inappropriate, Anglo-Saxon models of teacher-as-master instruction conflicting with their native peer/team effort model of learning (See Erickson 1977, Potter, Jones, and Cervantes 1977, and the references in Section 2.5 of this report). Such research has pulled together the efforts of anthropologists, educators, linguists, psychologists, sociologists and others to provide a truly interdisciplinary field of inquiry. Not all investigators, however, have remained equally faithful to the tenets of the ethnographic approach and thus serious questions have arisen as to the viability and value of some of these investigators' results.

A pervasive oversight is the ignoring of the criterion of "emergent variables" in ethnographic research. All too often research in this area is marked by the a priori determination of "significant observational features" prior to going into the field (see the list for bilingual classroom research, supplied as Appendix 4 of this document, taken from Mackey 1976, Chapter 7; also, Fishman 1967, Ramirez-Arce-Torre and Politzer 1978).

Such lists may be based on the results of previous field work (in instances where the features emerged from the data) and may even be "justified" on the grounds of expediency, i.e., under the assumption that valuable time will not be wasted on research which will provide the same features anyway. However, such a procedure runs the inevitable risk of radically prejudicing and distorting the observations of the researcher, a goal which is precisely what the ethnographic approach aims to prevent (See Cooper 1978 and Macnamara 1974 for comments on this issue). In sound ethnographic research, the absolute minimum number of explicit assumptions about the culture (subculture, subgroup), their attitudes, beliefs, traditions, expectations and resultant ways of behaving would be involved in carrying out the research. That is, the theoretical framework and prior experience, although explicit, should be as open-ended as possible in order to allow for greater sensitivity to information which may or may not conflict with these prior assumptions and knowledge. This tenet does not leave room for the prior determination of observational features.

Such features as are derived from previous work in the field do have a place. However, it lies in making cross-case study comparisons for generalizations and verification. Although the absence of such features from the conceptual framework which the investigator takes into the field in carrying out ethnographic research may prolong the period necessary for completing the research (See O'Keefe 1979, Tilley 1980), the benefits are said to justify the means. To cite one example, if the comparison of sets of relevant features (derived from the independent ethnographic observation of large numbers of different bilingual classrooms, where the linguistic and cultural backgrounds of the pupils and teachers differed from classroom to classroom) resulted in a subset of features which were <u>equivalent</u> across all of these classrooms, this subset would provide extremely useful information about the "universal" aspects of human learning in bilingual classrooms. Such common features would be of great value, for example, in formulating methods and materials for bilingual instruction. However, research which assumed from the outset what were the significant features to be observed might seriously block the possibility of achieving results such as those given above. This example, of course, oversimplifies the difficulties involved in such work, for example, the question of assuring the uniformity of ethnographic data and the types of analysis to be used (see Erickson 1977, Macnamara 1974, and, on a more general level, Nissen 1958).

Ethnographic research on classroom behaviors has focused on a wide range of subjects, (See Smith 1975) and includes the study of:

- Teacher attitudes and demonstrated behaviors toward students, such as the effects on present and future student learning behavior when the teacher adapts his/her teaching style to the presumed needs of the students. Examples include those documented by John (1972) for Navajo classrooms; and

- Student expectations and resultant classroom behavior as in Dumont's (1972) study of the effects of student silence on classroom organization and behavior among the Navajo. See also the articles devoted to specific ethnographic studies in Cazden, John, and Hymes (1972).

2.4 Ethnography and Communicative Behavior Research

2.4.1 Ethnographic Research in Linguistics

Ethnographic research has a long history in certain branches of linguistics, specifically in the area of anthropological (ethno, descriptive) linguistics. The collection of language data as part of the general collection of cultural data has always formed a part of ethnographic research. In linguistics proper, perhaps the first practitioner of ethnographic research in America was Boas (1911). Since that time, the foundation of most linguistic research has always rested on sound ethnographic field work (See comments in Samarin 1967).

In the past few decades, the traditional techniques involved in the gathering and analysis of linguistic data from the field have been supplemented by a number of different types of quantitative measures. For example, error analysis, the statistical measurement of mistakes made in written language (judged against native intuition as to "good" language usage), has often been applied to second language and bilingual classroom instruction. It represents a method of determining what errors are most frequent, and therefore most deserving of concerted attention by the teacher for students having a particular language background (O'Baoill 1979 Marquez 1979, Hunt 1980). In addition, contrastive analysis, the statistical comparison of quantity and frequency of structural units of language (phonemes, morphemes, sentence types) in two or more languages, has usually been undertaken with the underlying assumption that where two languages differ most with respect to structure, students will have the most difficulty learning (Fishman 1967, Politzer 1975). Variable rule formats in sociolinguistics as descriptions of language variation provide another example of quantification (Carden 1973, Cedergren and Sankoff 1974, Fasold 1972, Kay and McDaniel 1979, Labov 1966, Sankoff and Labov 1979). Such quantification of the results of ethnographic research has often been advocated in the literature (see Feinberg 1977, Erickson 1977, Reichardt and Cook 1977, Rist 1977, Glaser and Strauss 1967), but has seldom been carried out to the degree

current in linguistics. Such quantified results may well help to facilitate the now laborious task of carrying out cross-case study comparisons, particularly in the area of bilingual education where so many features must be taken into consideration in interpreting data. There is a danger, however, in mixing quantitative measures with ethnographic data, namely, the overquantification and spurious quantification of the data. A number of critiques of ethnographic studies in linguistics which have overindulged in quantification have already appeared (see the critical comments with regard to variable rule formats in Bickerton 1972 and Rudes 1976). This is particularly apparent in the work of many of the participants in some of the major Eastern European contrastive linguistics projects (see, for example, the articles in the latest volumes of the Romanian-English Contrastive Linguistics Project, Center for Applied Linguistics).

2.4.2 Ethnographic Research in Non-Verbal Communication

It has been generally agreed upon by researchers in the field of non-verbal communication (including the study of gestures, facial expressions, stance, tone of voice) that an ethnographic approach is the most appropriate approach for the study of these behaviors (See Birdwhistel's comments on this as quoted in Ludwig 1970). While significant research has been carried out on non-verbal communication within this framework since the publication of Birdwhistel's and Hall's landmark works (Birdwhistel 1952 and Hall 1959), disappointingly little of this has been directed toward the nature and function of non-verbal communication in bilingual settings (See similar comments in Poyatos 1975). Most work in this area has been directed to cross-cultural face-to-face communication (Saitz and Cervenka 1962, 1973) and to non-verbal behaviors which accompany spoken American English (Birdwhistel 1966).

Byers and Byers (1972) presented a general review of research on non-verbal communication and education in general, while Poyatos (1975), in a more disparaging tone, provided a critical review of the subject that pointed out the uneven coverage of the different areas of non-verbal communication and the general lack of comprehensive studies which could be of use in educational research. Certain recent ethnographic studies of bilingual classroom behaviors, where there is simultaneous videotaping of the situations being documented, are beginning to provide much needed data in this area (in particular, the very recent work by the Center for Applied Linguistics under the "Functional Language Project" funded by the Carnegie Corporation; Griffin and Shuy et al., 1980). Much more empirical research of all kinds is needed in this area.

2.5 Ethnographic Research on Communicative Behaviors of Bilingual Education in School Classroom Settings

The use of ethnographic research in the investigation of bilingual education in classroom settings is a relatively new field, originating in works which appeared in the mid-1960s (See Bauer 1967, Hymes 1964, Macnamara 1966, Osterberg 1961, and the articles in Cordasco 1978), and has rapidly gained momentum. Because of the sheer volume of publication in this field over the past two decades, a truly comprehensive critique of works in the field would be out of the question here. Instead, the present review will focus on the more restricted domain of examining the kinds of issues being investigated and the types of problems, other than those already mentioned as general to ethnographic research, which investigators have encountered in carrying out their research.

The articles in Cordasco 1978, all written in the early to mid-1960s, provide an excellent coverage of research on the ethnography of bilingual classroom behavior during its formative years. These articles provide a solid base upon which to understand the issues being raised at present. Those receiving the greatest attention include:

- Attitudes expressed by students, teachers and the community toward the mother language and the second language and how these affect language instruction and acquisition. See for example, the discussion by Hunt 1980 where he notes that the ethnocentric attitude among Francophone bilingual instructors in Switzerland often impeded the learning of French by German-speaking students, whereas the bilingual instructors whose native language is German, and who seemed to lack the ethnocentrism found among the Francophones, did not impede the instruction of German to French-speaking students;

- The use of the mother language or the second language as the primary language of instruction in schools and how this affects linguistic development (proficiency) in both languages (Osterberg 1961);

- At what point to begin bilingual classroom instruction (Macnamara 1966, 1973, Van Overbeke 1972);

- The role of sociocultural factors in the learning behavior of bilinguals (Bauer 1967, Cervantes 1976, Lambert 1975, Lambert and Tucker 1972, Philips 1970);

- The different types of bilingualism and the implications for bilingual instruction (Van Overbeke 1972);

- Empirical case studies of bilingual education without explicit goals (Barik 1978, Malherbe 1978); and
- The utility of linguistic studies of bilingual education (Keller 1976).

It should be noted that the above represent only a fraction of the recent research in the field, (See Mehan in Trueba et al., 1980 for others) yet they serve to illustrate what are major issues and/or points of departure (or questions being addressed) for which ethnographic research in bilingual classrooms is particularly suited.

While most studies focus on language and sociocultural factors, occasional attempts have been made to examine kinesic behavior in the classroom, particularly the congruence or noncongruence thereof to teacher speech (Galloway 1970). With regard to the paralinguistic phenomena of the American classroom, a perceptive and knowledgeable observer, Marin Joos (1961), noted that if changes could be introduced in the culturally coded paralinguistic signals in the teacher's voice when she/he stood before a class, a significant educational revolution would result. The kinesic and paralinguistic behavior of teachers and students in bilingual classrooms represent perhaps the most seriously understudied, yet potentially valuable sets of behaviors for understanding the significant features of bilingual classrooms, and the consequences of these for learning in this environment.

2.6 Methodological Considerations

Assuming a domain of inquiry is suited for ethnographic investigation, the most serious problem facing such research concerns the selection of appropriate research instruments and techniques. This is, of course, not a problem unique to this specific area of ethnographic research or of research in general. Both qualitative and quantitative methods leave open, with some restrictions, the choice of research tools. The diversity of instruments and techniques for collecting data such as ethnographic narratives, computer coding, videotaping (See Chapter 3 of this report) and of analyzing this data such as componential, contrastive, error, taxonomic analyses, computer simulation (See again Chapter 3) raise serious problems for the generalizability and cross-case study comparability of the results of ethnographic studies (See also Bishop 1979, Cohen 1970, Gumperz and Hernandez-Chavez 1972, Hawkins 1979, Mackay and Williamson 1978 and Politzer 1975 for examples of the diversity of techniques involved). These topics, together with several related issues, will be dealt with at greater length in the next chapter.

3.0 METHODOLOGICAL ISSUES IN DEALING WITH ETHNOGRAPHIC INFORMATION

3.1 Data Sources

Dealing with the substantive areas mentioned in the preceding chapter requires some decisions on the choice of data source. Sampling issues abound in ethnographic investigations, just as in quasi-experimental program evaluations or in research using structured questionnaires or other data sources. These issues center about the following: how many sites, and what sites should be used as desirable instances of the events being observed, how often should an observer be on that site to view the interactions, what individuals are involved, what behaviors are of interest, etc. Related to this is the issue of: on any one occasion, or on any one site, how long a period of observation should occur to reliably discover the behavior of interest. The individuals - teachers, students, aides, etc. - to be chosen for participant observation are not usually a sampling issue unless the time on site or other practical constraints permit it. A final consideration is where the ethnographic information needed can be optimally gathered.

Whiting and Whiting (in Naroll and Cohen 1970) dealt with a variety of sampling principles which affect the choice of setting and activities to use as a basis for observations. In their system, there were six types of foci for observations; i.e., those which dealt with:

- activities;
- categories of acts;
- objects or persons who are the center of attention of a group;
- individuals who are representatives of a status category (which also includes groups);
- dyads; and
- settings.

Furthermore, from a sampling viewpoint, there are two different types of observational studies: (1) multi-population, in which different samples are administered different treatments, and random assignment of subjects to treatments is not used (i.e., a form of quasi-experimental design) and (2) observational, using a single population. In

the latter, sampling from a single defined population occurs, and the relations among variables measured on that sample are then studied (Cooley 1978).

Not all observational studies are conducted with representative samples. For certain reasons, a purposive sample or a small number of cases may suffice. Probability sampling can be useful for allowing the formation of inferences from a sample to the population with a reasonable degree of precision. That technique addresses questions such as how some factor is distributed in a large population, the number of times some language use pattern occurs, and if these can serve to help discover predictive relationships in a sampled universe. However, Honigman (in Naroll and Cohen 1970) stated that probability sampling techniques would not be suitable when the research goals were to understand some cultural system. In that case, frequency of occurrence is not the prime goal, nor is generalizing from the sample findings per se. Furthermore, in a relatively unfamiliar social or cultural system, it may be difficult to construct a sampling frame from which to draw a representative sample of the target universe. Probability sampling approaches may not even fit when considering all of the informational sources involved in terms of the logistics and time involved to reach them.

Then, too, the more homogeneous the population, the less likely it is that probability and non-probability samples would yield different results. However, in a large-scale heterogeneous social system, using some form of stratified random probability sample will help ensure that the characteristics of the system will be detected on a generalizable basis. The stratification variables can be drawn from the coding categories formed through studying information already known about the system, and/or variables known to be related to the study goals and factors considered useful in ensuring that representative sites are present.

With this in mind, the choice of which data collection unit needs to be made, and where an observer should be located to most efficiently make observations. To help in this process, "the daily routine chart is as essential as a genealogical chart is for the study of kinship," as Whiting and Whiting (in Naroll and Cohen 1970) expressed it. For bilingual classroom settings, this daily routine chart would in most instances correspond to the lesson plan for a day (or longer) representing the duration of the field visit. It also would consider the allocation across time periods of dominant language and English instruction, and whether these were embedded in a pull-out or classroom-based setting. To verify that the lesson plan did validly indicate the daily routine, it would be useful to conduct a pilot-test or at least discuss this matter with principals, resource teachers or teachers before going onsite.

This can be a useful benefit of conducting a pilot test, as Cahir, Jacobs, and Carrasco have found in their own classroom research. For instance, the latter investigator found math being taught during the designated reading period (an interesting finding in its own right).

The number of observations depends on the generalizations needed to describe the phenomena. The homogeneity (or conversely, the heterogeneity) of the behaviors across members of the sampling category governs this decision. This reasoning would of necessity extend to sampling of occasions because the behaviors may be so variable that observation of too few occasions would fail to detect the presence of the event (trends in language use, code switching).

The observational period on any one occasion needs to be some form of compromise between periods which are too lengthy and may lead to observer fatigue (and consequent reliablity and validity problems), and periods which are too brief to allow for the observation of certain behaviors. For molecular-type observations, long periods of time could be used if the recording technique was straightforward.

3.1.1 Related Issues

An ethnographer's prolonged immersion in the culture is apt to minimize his/her inconsistencies, errors and misunderstandings when using ethnographic procedures in working with informants. Furthermore, a lengthy stay is likely to build up rapport with informants, as will native lanaguage familarity. It seems highly undesirable to rely for too long a period on a local interpreter, since the possibility of obtaining inaccurate information is likely to arise.

The choice of informant should rest on such factors as the ability of that individual or data source to supply the desired information from the desired perspective. As pointed out (by Whiting and Whiting in Naroll and Cohen 1970) certain informants (as in bilingual community settings) may:

- Lack an adequate vocabulary to describe the behavior;
- Not perceive that the behaviors were made and therefore not be able to generalize about them;
- Be unaware of behavior in certain domains;
- Not report acts he did not perform;

- Distort reports, due to conflicts between ideals and reality; and
- Not remember relevant past events.

The suitability of informants should therefore be carefully assessed before deciding to conduct observations with that source or in that setting.

3.1.2 Practicalities Affecting the Data Collection Effort

The nature of ethnography requires a particular type of individual, not just someone with academic training. Herriott (1977) described the approaches taken to recruit field workers for the Project Rural ethnographic case studies undertaken in rural school systems. Notices were placed in newsletters of the American Anthropological Association and the American Sociological Association. Contacts were also made with university departments of sociology and anthropology, field worker training programs and experienced senior field workers. All vitae were screened with the study design and case study criteria in mind. All leading candidates were also asked to prepare a written critique of a project rural field worker role definition paper. This critique became a type of "work sample," in that each candidate's ability to organize ideas on paper could be directly appraised. It also served to: (a) immerse candidates in the specifics of the role as contrasted with the traditional field worker role, thus opening up any personal factors or professional shortcomings, and (b) have them consider the ethical issues involved in pursuing the field work under government contract (See Fitzsimmons, 1975).

The match and/or sensitivity of the observer to the naturalistic setting is highly important, as Rudes (1980) and Hecht (1980) have pointed out. To use Hecht's example (cited from work by Coles in rural Alaska), Eskimo children are brought up to be quiet, controlled and patient, and not to ask unnecessary questions. Their society stresses cooperation rather than individual competition. Teachers and observers confronted with this situation are likely to misinterpret the signals and responses they receive. Cross-culturally, this pattern also needs to be taken into account when interpreting a similar behavior, since its societal meaning may be different.

The size of the observer team was also discussed by Whiting and Whiting (in Naroll and Cohen 1970). The reliability

of measures could be doubtful when working alone; foci of observation might shift; or, complex and/or concurrent activities might not be gathered (for example, if several forms of peer-peer interactions occurred in the bilingual classroom). Whiting and Whiting first suggested simultaneous recording by two or more individuals, but then pulled back from advocating that position as they stressed that a team of persons may increase the obtrusiveness of participant observers more than if only one observer were present. They also suggested that native assistants should be found and trained to observe. In a school setting this might correspond to using local community residents or parents of children not in the bilingual classrooms being sampled so that potential biases in objectivity could be avoided. When using such native observers, Whiting and Whiting suggested working with them until a high level of inter-rater reliability in the use of linguistic coding categories, behavioral coding schemes, etc. was obtained.

How "participant" should be the observer? In naturalistic settings it may well be impossible for the observer to be completely unobtrusive. For example, few bilingual classroom settings may possibly be situated adjacent to or in rooms with one-way mirrors. Sitting in the rear of the classroom, which is probably the usual location for the observer, automatically makes him/her somewhat obtrusive, at least initially. Whiting and Whiting (in Naroll and Cohen 1970) recommended that all interactions be discouraged if the same observer intended to return on numerous occasions (if measuring longitudinal studies of trends in non-verbal communication, or events occurring over time). The same investigators, however, recommended interaction between the observer and the group if a single observational occasion was involved.

3.2 Measurement Approaches

As Pelto (1970) pointed out, the ethnographer is the main instrument of observation, and any technical aids are simply methods for sharpening perceptions of the ethnographer and standardizing the observations. Nevertheless, there still remains a strong need for the ethnographer to coherently, fully and rapidly take notes in the field setting. As Rudes (1980) advocated, being able to record notes in some form of shorthand enables fuller notes to be taken in shorter time, which also provides better coverage of concurrent behaviors.

However, observers may need help when in the naturalistic field setting. To cite Wilson (1977a), in his experience the sheer volume of information available to the observer forced a decision as to which items were most important. He offered an example of a high school setting in which student learning, and the sense of belonging to a school community, were considered important information to gather. In a science class students were proposing experiments and soliciting help from fellow students and the teacher. The observer was torn between: (a) observing who interacted with whom and in what ways (indicators of building a close, supportive school commuity), or (b) observing the kinds of proposed experiments and the reactions to them by others (indicators of student learning and problem-solving skills). The on-the-spot decision to determine which of these offered more information, and thus which to focus on, probably caused other equally significant data to be missed.

How should observations be recorded? In view of the complexity of events and naturalistic settings, Whiting and Whiting (in Naroll and Cohen 1970) suggested that it was easier to decide what not to record than what to include. Similarly, trying to focus on either molar or molecular units of events and interactions was preferable, rather than to focus on both levels simultaneously.

In this respect, Brown and Webb (1975) considered classroom observation per se to have four main disadvantages: time-consuming (needing 20-30 minute intervals on a monthly basis), requiring expensive training, representing an administrative burden (needing external observers, or if using peer observers, then having to arrange for substitutes for those latter teachers). Observers also pose a potential threat to teachers, at least initially, and they can pose problems throughout the process.

3.2.1 Overall Issues in Using Technical Aids

For much the same reasons as above, Margaret Mead pointed out (in Naroll and Cohen 1970, p.255) that:

> "all audiovisual technologies are capable of collecting enormous amounts of material, of far greater permanent value, than can the field worker's unsupplemented pencil and paper recording... mechanized methods of data collection give him [the ethnographer] far more data, far more precise data, and inexhaustible supplies of material on which he can work for the rest of his life."

Other factors also affect the choice of whether or not to use a mechanical or technical aid in the ethnographic process, and if an aid is beneficial, what type of device it should be. To begin with, if all cultural records in the setting are valuable, then some form of aid must be used as a supplement to human mediated recording of information. For a single field worker assigned to a site, a reasonable balance needs to be struck between recording the total context and its personnel and relying on some form of mechanized aid. If the latter obstructs or detracts from adequate concentration, then such an aid is undesirable. As Mead (in Naroll and Cohen 1970) indicated, the field worker would be better off with just a pencil. In fact, using any mechanical or technological equipment should be done with a minimum of distractions and fuss, and with a full understanding of how it operates. Any interruptions for such purposes tend to change "naturally" occurring the purity of events. Thorough training should be given the videotapers, tape recording personnel and other operators of the technical equipment.

Similarly, a magnificent film of a town meeeting, without field notes on, for example, who the speakers were is wasteful, and untranscribed tapes are useless. Mead (in Naroll and Cohen 1970) therefore recommended that a single field worker "...use no more mechanized recording than he could safely annotate in the field, which means that systematic note taking should accompany every kind of recording or filming..."Singlehanded recording... presupposes an extraordinarily high level of technical knowledge and skill..." (p.256). Considering all these factors, Mead recommended that a team of two could feasibly deal with note taking and mechanical recording, while a team of three could feasibly deal with note taking, sound, and film. (These points were made before the advent of advances in videotaping and wireless microphones.) Extending this point, the more complex the technology, the greater the demands are on a single field worker, and the less that other kinds of field work may be carried out.

At present, a wide variety of technical aids are being used in conducting ethnographic research (see Exhibit 2). Not all studies use such aids. (For example, Rist 1980, and Beers and Knapp 1980 preferred not to do so.) Some of the pros and cons of using these aids are discussed below, together with the areas of investigation to which they have been applied.

3.2.2 Audio Equipment

Rudes (1980) considered sound recording equipment, and in particular, a small cassette tape recorder, to represent the best supplement to an ethnographer's field notes and verbatim.

EXHIBIT 2

TECHNICAL EQUIPMENT IN ETHNOGRAPHIC FIELD WORK

- Tape Recorders - Stationary/Table-Top
- Tape Recorders - Portable Cassette
- Still Cameras (and Photographs)
- Movie Cameras (for Ethnographic Films)
- Audiotapes - Wireless Microphones*
- Videotape Portable Cameras*
- Videotape Stationary Cameras
- Microcomputer Observational System with Pupil Response Pads and Cassette Tapes
- Interaction Chronographs
- Remote/Closed Circuit Television

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*Have been jointly used

narratives of observations and interviews. However, This may not be a factor if the study issues did not deal with interactions. Audiotape, because of its very nature, causes the visual-gestural channel information (the contexts of interactions) to be lost (Bruck and Shultz, 1977).

Audio equipment was used by Shultz and Harkness (n.d., cited in Erickson, 1977). A cassette tape recorder was put in a child's backpack and each Spanish-speaking child in a bilingual classroom wore one for a half hour while the child's naturally occurring speech was recorded. Analysis of tapes indicated that those in the program longest spoke English more frequently than other children. Using a form of "ethnographic monitoring" (a term offered by Erickson) with the bilingual teachers, Shultz and Harkness found that teachers conducted formal "content" instruction half in each language, while "procedural" instructions were almost exclusively given in English. It was also discovered that those children in the program longer were performing a "brokering" function of translating the teacher's instructions into Spanish for the newcomers, and also "speaking up for them" to the teacher in English.

A battery-operated tape recorder of good fidelity (e.g., an Uhur) will alleviate extraneous noises and feedback, and is relatively inconspicuous. Of course, like other mechnical supplements to the ethnographer's notebooks, it has an element of conspicuousness which may sensitize those in the setting to its presence and perhaps alter their behaviors (Rudes 1980; Pelto 1970).* In a sense it represents a "foreign element" and may interfer with the naturalness of children's behavior. (Psychometrically, this is known as "method variance," in that the validity of results are affected by the measurement technique used.) This problem may be especially true in bilingual classroom settings where the dominant language of instruction is one in which "foreign elements" are salient (Eskimo and other non-Western languages).

Stationary microphones distributed within a large student-teacher ratio bilingual classroom, such as might be found in an urban school district having large numbers of target students, are relatively less likely to distinguish individual speakers, especially those who are culturally inclined to talk less regularly and/or less forcefully (loudly). Intelligibility also becomes a factor if recorded voices are less distinct due to distance from the microphones.

On the other hand, wireless microphones remove the need for the taping machine to be directly present in the setting (such as a bilingual classroom). They make it possible to more clearly distinguish individual conversation in peer-peer

*A legal problem exists in some states wherein the person being interviewed or recorded must expressly give permission. Large-scale research needs to take note of this fact.

interactions or those of student responses occurring from the back of a classroom. Furthermore, extraneous sounds that might override the voice signal are minimized via the closeness of the recording medium. This system is particularly useful when used jointly with videotaping (see Exhibit 2).

Other practical considerations, aside from the sheer time involved in transcription of audio-recorded material, include the following (taken from the account by Deshler and Czaplewski 1978):

- The cost of editing even for continuity purposes (not to disrupt the naturalistic sequences) may require the use of a technician with relatively high hourly costs;
- Production costs of renting equipment and using skilled personnel may be high;
- Tape reproduction costs for copying audio portions to other modes for transcription may be excessive (also stated by Rudes 1980);
- Tape purchase costs on a per-reel basis (alleviated a bit by discount bulk purchase arrangements); and
- Number of hours shot, per site and number of settings and/or sites, as a "multiplier" of all of the above.

Rudes (1980) also recommended copying material from cassette tapes (which deteriorate relatively rapidly) onto open-face reel-to-reel tapes, which provide a higher quality of playback and better control over the listening speed of the material.

3.2.3 Photographic Equipment

As Pelto said, "there are so many kinds of human behaviors and social interactions that are so technically complex and rapid that adequate study of these actions in full detail can be accomplished only by means of well-prepared visual records." (Pelto 1970, p.145).

Cameras are used for still photography in ethnography, either to illustrate the narrative material, or to elicit reactions from informants to: (a) particular aspects of the setting or (b) photographs conveying certain themes. Leaving still photographs with informants also can be a means of supplying them with feedback. Cameras also can be quite useful in providing a general orientation to contextual aspects of the setting (such as hallways of school buildings), surveying and mapping particular sequences of activity on the site, and in documenting special events such as celebrations which are so complex that to record them solely via the ethnographer's notebook would render them somewhat one-dimensional. Special school events such as school-wide auditorium presentations, or playground organized sporting events with peer-peer interactions may also fall into this category.

Ethnographic films of complex or highly sensitive and moving interpersonal relations can also be useful in documenting the full, integrated range of events. Such films are generally relatively unedited, in order to preserve the naturalistic characteristics of the events and to maintain the correct chronological sequence (Heider, 1976).

Weiss (1977) also stressed, in speaking of anthropological films, that all too often they were made from a solely Emic perspective, that is, being limited to describing events as they would be seen by those being filmed. He disagreed with that point of view, and argued that ethnographic films should "speak" and thereby convey the Etic perspective of the anthropologist. He also repeated the Asch et al. (p.299 of Weiss, 1977) statement: "the camera can be to the anthropologist what the telescope is to the astronomer or the microscope is to the biologist. "Despite the Etic approach he advocated, he felt that it was worthwhile, in that such attempts to communicate would still be evaluated for ethnographic veracity." Other anthropologists disagree with this use of film.

Templin (1979, 1980) suggested several procedures for improving the representativeness of photographs taken by the observer. These procedures were to:

- Vary the perspective and angle while photographing;
- Take frequent pictures without regard for significance;
- Sample a representative range of interactions, and topical, temporal, spatial and environmental dimensions;
- Reduce obstrusiveness by minimizing informants' camera-consciousness (one way might be to use a quiet shutter); and
- Take picture sequences which assure representative activities and interactions over time (perhaps the segments of a lesson).

Templin (1979, 1980) even suggested the use of the "participant camera," a logical extension of evaluation methods being used by third-party evaluators or participant observers. Pointing out that photography in and of itself can supplement program evaluation methods by supplying visual information about contexts and interactions, she also advocated having a participant use a camera. (Another approach was to hand the participant still photographs, to have that person provide verification, and obtain elicited responses and interpretations.) The "participant camera" concept went even further by its serving as a means of probing, representing informants' interpretations and suggesting future topics to photograph in the field setting.

3.2.4 Videotape Recording (VTR)

Videotaping has a number of positive features as listed in Exhibit 3 (from Jope et al. 1978), and as others have indicated (Rudes 1980; Bruck and Shultz 1970; Mehan 1978). For instance:

- Ethnographer observations in written form can be confirmed by other researchers in order to ascertain their validity;
- Behaviors (whatever the specific form) can be "picked up" although the ethnographer (or even a team of ethnographers) may have overlooked their occurrence;
- VTR eliminates the need to make onsite judgements and more detailed coding decisions;

EXHIBIT 3

WHY VIDEOTAPE?*

	SITUATION	VTR's CONTRIBUTIONS
1.	Demonstration involved a great deal of equipment, detail work, and time when it is performed.	Saves time by taping it once for all future use.
2.	Action is too long in development.	Condenses time by taking scenes at appropriate intervals and playing back all together.
3.	Rehearsal situation requires recording and immediate playback.	Made to order for just this circumstance.
4.	Event takes places in a location not accessible to the student or class.	Brings the event into the classroom having used portable and shoulder-pack VTR.
5.	Objects are too small for class to see.	Magnifies objects using close-up lenses or microscopes.
6.	Local visual objects or places are separated by some distance.	Brings related visuals together onto the same tape.
7.	Situation requires alternate views, fairly close-up as well as distant views immediately.	Uses zoom lens as in regular photography.
8.	Objects can only be photographed in available light - i.e., classroom or daylight.	Handles easily.
9.	Would like to present visual in a fully lighted classroom.	TV images are visible in any light, as are your home TV programs.
10.	Teacher wants to photograph or record scenes personally, but has no technical training.	Little training necessary.

*Source: Adapted from Jope et al., 1978.

- Repeated viewing of the same ethnographic event or setting can be used for making inter-rater reliability estimates, for refining analyses, for addressing other ethnographic issues, and for coding concurrent behaviors (to augment the initially-coded events);

- VTR permits other ethnographers to analyze the same corpus of events on their own, as an independent analysis, or for "meta-evaluation" purposes; and

- VTR permits particular students or informants in the ethnographic settings to have their discourse or interactions identified as being theirs, for the purpose of gaining more insights into the relationships among several variables.

As Exhibit 4 indicates, VTR has been used in classroom settings. For example, Amarel (1980) summarized Mehan's 1979 study of social organization factors that existed in classroom settings. That study used videotaping procedures of the first hour of school activities about once every three weeks for most of the school year. Nine classroom lessons were selected for analysis (See also Mehan 1978). Similar work was conducted by Wallat and Green (1979) in video taping verbal messages delivered by a teacher during seven group meetings of kindergarten classes over a four month period, as part of ongoing research into "social events," teacher-child interactions, and charting the dimensions of nonverbal and verbal communication issues.

There is some evidence that even with the use of VTR, participants tend to forget that it is there (Griffin and Shuy et al. 1980). Deshler and Czaplewski (1978) also reported three studies, including their own, conducted with human service agency professionals, college classes and their teachers, and VTR therapy sessions, which found that spontaneity was not inhibited all the time. Absorbed with the context of the interaction, the VTR apparatus was forgotten.

Some of the logistical and data collection management practices used in videotaping parallel those used in almost any other form of educational data collection. For example, the Instructional Dimensions study (Peterson 1977; Kirschner Associates 1977b) used locally-based site coordinators as personnel to manage all forms of data collection at a given site. (This included standardized tests, interviews, rosters, curriculum characteristics information and videotaping activities.) The site coordinator therefore hired and trained a videotaper. However, the site coordinator scheduled the videotaping sessions and directed the videotaper's

EXHIBIT 4

SELECTED APPLICATIONS OF VIDEOTAPE RECORDING IN CLASSROOM SETTINGS

Investigators	Issues and Variables Measured	Methodology and Population	Comments
Instructional Dimensions Study (Kirschner Associates, 1977a, 1977b; Cooley and Leinhardt, 1980; Peterson, 1977).	Opportunity (amount of time to learn subject matter and degree of curriculum overlap between what is taught in the curriculum (and by the teacher) and the achievement test) Motivators - (curriculum aspects-variety in format, difficulty level of materials, degree of student interest in materials; interpersonal aspects-degree of teacher encouragement in games and contests, self-management and peer tutoring) Instructional Events (frequency of teacher management and cognitive statements to individuals, small groups and entire class; nature of teacher-students verbal interactions such as teacher reception of active responses, soliciting of student opinions, etc.)	Classroom as unit of analysis; teachers taped for two full class periods in 275 regular and 200 compensatory education classes in representative first grade reading and math, and third grade reading and math classrooms; taping on consecutive days on a school-by-school basis.	A large-scale video taping effort, used in conjunction with other data sources.
Rodriguez-Brown and others (1976).	Language use and interaction patterns; time devoted to each language; purposes of language use; reasons for code switching and indications of languages' status in the classroom; differential patterns of peer-peer language interactions in bilingual and English classrooms.	Three children of Spanish-speaking background enrolled in a grade one half-day bilingual program; each child videotaped for a full school day, three times throughout the year; target child wearing a wireless mike to gather conversation, used with one portable video camera to focus directly on the target child and immediate social surroundings; one stationary camera to focus on the classroom as a whole, its climate and activity, and the target child role.	Perhaps the first study of language use in a bilingual classroom using video equipment (claimed by authors).
Bruck and Shultz, 1977.	Language use patterns during interactions in bilingual classrooms; differential use of Spanish in peer-peer interactions in bilingual and non-bilingual classroom settings; shifts in relative amounts of language use in a specific context over time due to teacher language proficiency; purposes for, and under what conditions does language use occur during interactions; reasons for code switching and changes in rules for language use.	Two grade one children in a half-day pull-out transitional bilingual (Spanish) classroom; videotape data collected three times during school year for an entire school day; target child wore a wireless mike to record conversation, used with a portable camera to capture child and immediate social surroundings; a stationary camera and mike focussed on classroom to capture child's placement, and activities in context of class.	
Griffin and Shuy et al., 1980; chapters written by individual investigators.	Teacher expectations of students' communicative competence and classroom behaviors during teacher "elicitation of behavior" sequences; transitional activities between events of schooling and school lessons; behavioral and language cues which predispose children for the next activity (shifts in focus); development of language arts working skills.	Eight kindergarden lessons (four lessons for each of two teachers); videotaping in classrooms; joint use of observer ethnographic reports of classroom behavior, and naturalistic data samples.	Full methodology unavailable since study is not yet published.

activities. In the broader organizational structure of the entire study, the data collection manager supervised a videocoding manager who in turn supervised videocoders. Videotaping sessions were based on training supplied by site coordinators via a videotaping handbook and two training sessions.

The training contained instruction in the use and maintenance of videotaping equipment, procedures for working with teachers and pupils, and the logistics of: (a) caring for videotapes, (b) labelling videotape cartridges and (c) shipping videotapes to the central office. Other training session issues included the desirable qualifications of videotapers, hiring of the latter, placement of equipment in classrooms, the types of instructional activities to be videotaped, and checks for the reliability and quality of videotaping.

On the negative side of using VTR, Bruck and Shultz (1977) were made aware of the practical problems in using VTR techniques. They pointed to the time and equipment involved, the degree of sophistication VTR requires for untrained researchers, and the possibility that VTR is too limiting in terms of the number of situations and events that can be studied. In their study, a pilot study of two first grade children in a pull-out transitional bilingual program, they used trained research assistants to do data collection and preliminary data analysis. Researcher records of the amount of time invested in the project and the problems which occurred indicated that: (a) equipment and tapes were expensive; and (b) three staff members were needed in the classroom during taping (one for each camera, one of these portable and one stationary, and a third person taking notes on classroom events). In total, 66 working days were needed for their study of two bilingual school students. This was about equally divided among data collection, coding and data analysis, and ten days for transcription. Coding alone took 21 days of the 66, a heavy investment. Among the suggestions they made to improve the utility of their study were to: gather more information on specific classroom variables such as seating patterns and attendance, which systematic onsite observation throughout the school year could have provided, and to use a better balance among use of videotape (less), use of audio tape (more) and conducting onsite observations (somewhat more).

As mentioned earlier, ethnographers should not simply "turn the study over" to VTR. In fact, to obtain a full ethnographic record, Whiting and Whiting (in Naroll and Cohen, 1970) suggested that simple running descriptions of typical observational periods should be used to illustrate any coding system, as well as to use VTR. Such an approach would provide

a context for precoded material, and verbal descriptions, and could serve as a check on observer bias. Analyzing one's data as it was collected also was advocated as a preliminary means of ensuring that the materials being gathered were suitable for analysis, and that a fairly realistic analytic system was being used.

One other limitation on the use of videotapes or any other form of recording is that parental or student permission may be needed to obtain the cooperation of participants before the actually-scheduled sessions in the classroom. Video release forms have been developed, such as those used by Cornell University in a training project (Deshler and Czaplewski, 1978).

To use VTR with bilingual classrooms, a real issue may exist in one or more of the following ways:

- the newly-funded project may feel threatened by the presence of VTR as being too intrusive a presence;
- subsets of parents, especially from particular cultural groups, may misunderstand the purposes of the VTR sessions; and
- certain teachers may be uncomfortable with VTR as a potential critic of their competencies (including their bilingual abilities).

Proper advance explanations to all participants would seem to be desirable. When this is done, less attrition can be expected. (See Peterson 1977, reporting on the data collection management in the Instructional Dimensions Study conducted in non-bilingual elementary school classrooms.) However, if parental or student permission is not forthcoming, it would be necessary to either deliberately exclude that portion of the classroom with the target child or not include that classroom altogether.

3.3 Reliability and Validity Issues

Herbert and Attridge (1975) presented a set of criteria for designing and reviewing the qualities of observational systems. (These may more properly refer to interactional and time-use quantitative observational systems than to ethnographic approaches per se, yet may have generic features in common.) The 33 criteria were grouped into identifying, validity and practicality criteria. Among these were the following:

- The behaviors, subjects (persons or groups) and substantive content on which the instruments are focused should be clearly specified;
- Items comprising the instrument must be representative of the dimensions of behavior under study;
- Codes identifying categories should be simple, easy to remember, and convenient to record; and
- The observation unit recommended by the system (the length of time to collect a single observation, however defined in the study) must be specified.

As part of the foundation for preparing their article, Herbert and Attridge (1975) found that their ERIC literature search elicited over 830 references but found few dealing with methodological issues in observation studies. In fact, observation and reliability totalled 11 articles, validity 5 articles, sampling 1 and inference none.

The observer training procedures being used by SRI, Inc., with observation of Teacher Corps projects include the following. A small ratio of trainees to trainer (of about 5:1) was maintained. Many training techniques were being used, to ready the observer for the complex behaviors which needed to be gathered. Such training approaches included: (a) role playing, (b) coding of videotapes, (c) coding of natural classroom situations, and (d) completing homework assignments where vignettes were written using the codes. During the training process, each observer coded in the classroom, and was supervised by a trainer. At the end of training, a criterion videotape test which had examples of all the codes was used. A 80 percent reliability coding level was necessary as a criterion level of passing score. The actual observational activities in the classrooms began immediately after the passing of the criterion videotape test, so that the training was fresh in observers' minds.

Kirschner Associates (1977a) built various types of reliability checks into their videotape usage during the Instructional Dimensions study. These procedures included: training for videocoders in the area of reliability standards and checks, videotape quality checks, inter-coder reliability checks, intra-coder reliability checks, correlations of coders with the videotrainer on each of the inter-coder reliability check tapes, and correlations of the videotrainer's coding of the 15 inter-coder reliability check tapes. In view of the multi-site, multi-grade, multi-occasion and multi-data source nature of the Instructional Dimensions study, it seems evident that this level of thoroughness was desirable. (However, none

of these match the benefits set out by Mitchell, 1979, for harnessing generalizability coefficients in place of reliability estimates.)

Frick and Semmel (1978) dealt at length with observer agreement and reliability issues as did Mitchell (1979). Frick and Semmel reiterated Herbert and Attridge's (1975) finding of the relatively light body of literature on the subject, despite its importance.

Among their recommendations for improving observer agreement and reliability were the following. Observers should be adequatedly trained before data collection, and monitored during actual data collection, since observational skills may deteriorate. This may happen as a function of time following the formal training (or, with the number of occasions spent observing). If some doubt exists as to the adequacy of individual observer skills, then a criterion level or an expert coder should be used to code the same units of behavior, using the original category definitions. (This was termed criterion-related agreement in their article.) Frick and Semmel also recommended using videotapes to train observers. That is, a videotape with numerous examples of each coding category, and the same length as a normal observation period, could be shown twice. Individual observer coding patterns from the first viewing could be compared with the second viewing. Such an approach could avoid using an "artificial" videotape which does not reflect actual observational settings, or which only has isolated instances of the coding categories.

Their summary of considerations (p.181 of their article) is reproduced in Exhibit 5 (See also Shrout and Fleiss 1979). In particular, note the choice of reliability coefficients they advocate. Two types of observational systems are indicated, sign and category systems, primarily distinguished by how they effect the probability of chance agreement for a given "item." Category systems call for observers to assign observable behaviors to predefined, mutually exclusive categories as the behaviors occur. Which one best fits is the observer's decision. In contrast, a sign system calls for the observer to watch, but not code, classroom interaction for several minutes (The Classroom Activities Log used in Title I research used a 10-minute period; see also Brown and Webb, 1975.) Following that time period, the observer marks each coding category (or descriptor) which occurred at least once during that time interval.

Frick and Semmel (1978) also mentioned the role of situational variance as an effect on reliability estimates. Context variables such as: subject matter, class size, seating

EXHIBIT 5

Summary of Considerations for Determining Observer Agreement and Reliabilities

	I. Observer Agreement			II. Reliability of Subjects of Observation
	A. Criterion-related	B. Intra-observer	C. Inter-observer	
Purpose	Determine accuracy relative to a criterion	Determine consistency with oneself	Determine extent to which disagreement limits reliability	Determine extent to which differences among subjects can be discriminated relative to differences within subjects and other measurement errors
When	Before, during actual data collection	Before, during actual data collection	After actual data collection	After actual data collection
Medium	Videotape test: unambiguous, isolated examples	Videotape test: representative of coding conditions	Actual classroom	Actual classroom
Unit(s) of analysis	——Same as that/those used in actual data analysis——			
Coefficient: Category System	Light's κ_n or $\bar{P}_n$	Flanders' w_i	Intraclass correlation	Intraclass correlation (generalizability)
Coefficient: Sign System	Cohen's κ	Cohen's κ	Intraclass correlation	Intraclass correlation (generalizability)

arrangements, group structure, nature of teacher and pupil task, and time of day or week may account for variability in observer reliabilities from situation to situation. Certainly these factors exist in the bilingual classroom setting, and perhaps more so (including also pull-out vs. regular classroom settings, and teacher-teacher aide presence).

Situational variance is one facet which is treated in generalizability theory (Mitchell, 1979). Mitchell demonstrated that the most common index of the quality of data gathered in observational studies, the interobserver agreement percentage (a method recommended by Brown and Webb, 1975), actually has several shortcomings. Among them, this index treats agreement as being all-or-none. Partial or incomplete agreement is therefore not included in the index, thus tending to underestimate the actual extent of agreement. Some agreement also can be expected to occur on the basis of chance alone. Differences in experience, mental set, and training of observers can also affect the accuracy of observational data, as can the observational method used. The interobserver agreement percentage also is not the same as reliability estimation. Furthermore, various types of factors are confounded for each of the types of reliability coefficients. For example, interobserver reliability, which would relate two scorings of the same instrument, would confound random subject error with differences within and between scorers.

Mitchell therefore recommended that the technique developed by Cronbach and his associates be used, i.e., generalizability theory. In that approach, a number of sources of variation, called facets, are able to have their contributions to the overall variation to dependent measures estimated, and the size of that contribution determined. Thus the generalizability coefficient can provide information about the stability and consistency of individual differences, as a reliability coefficient can. However, it can also supply information about other sources of variance, in addition to individual differences and measurement error. Mitchell also recommended that generalizability theory be used in various ways, among them several relevant to this report:

- Duplicate generalizability - for use with separate scorings of the same behavior, as would be possible with audiotaped or videotaped recordings of bilingual classrooms scored on more than one occasion by more than one observer, using more than one form of the observational instrument;

- Session generalizability - for subdivisions of some behavioral sequences, as an extension of split-half reliability studies;

- Developmental generalizability - for the case of two or more administrations of the same instrument, perhaps at different ages or developmental states; and

- Observer generalizability - for determining the proportion of variance in scores attributable to the consistent behavior of the observers.

In general, Mitchell concluded that the generalizability coefficient supplies more information about the extent of stability, consistency and dependable individual differences among persons than does a reliability coefficient.

3.4 The Role of the Ethnographer

There are practical contraints to using ethnography in applied research or evaluations. These differentiate the latter from classic anthropology, as Wolcott (1974) and Mead (in Naroll and Cohen 1970) stated. The intensive and long-term contact with the field setting or culture (termed the rite of passage) remains the basic referent for properly conducting anthropological study. With such a time frame, relationships could be built up, the community could be better understood, tentative hypotheses could be developed and emerging theories could be tested. However, in some ways educational settings and funded research and evaluations are more dynamic than traditional field sites, which generally neither have the budget nor the time frame for supporting that level of field work. The approach reported by Wilson (1977a) was to assign a part-time observer for a single school year, as a continual and regular presence at the high school being studied. However, role identity issues emerged. The single observer was also expected (by school participants) to be the public relations person for the whole centrally-based evaluation study team and the project. The unwilling role and resultant pressures cut into his effectiveness as an observer.

Having a high degree of rapport with participants was very necessary since then they were willing to share intimate thoughts and answer apparently endless questions. Wilson found that in his experience, in every ethnographic study conducted in high schools, students have expressed concern about the researcher's identity. The status of not being a teacher or a student was difficult to convey, and not fully accepted or understood for several weeks. Finally, students were sufficiently at ease to discuss taboo issues with the ethnographer in front of teachers.

Sykes (1978) also found in his research that observers were not always clearly distinguished with respect to their social roles, i.e., having an observer per se in the setting was not an issue. However, knowing "who" the observer was, for the purpose of interacting with the individual and feeling at ease in that person's presence, was essential. This tended to affect the situational context, and consequently the quality/validity of information gathered during the observational occasion. In other words, some pre-knowledge of the observational occasion being scheduled would help the quality of rapport for personnel at sites and their being informants.

Similarly, Everhart (1975) reported that teachers had asked him not to enter their classrooms or to leave once access was gained. Principals also asked him to leave departmental meetings, although advance logistics and scheduling had apparently made it possible for him to enter the site and advance explanations of his role had been supplied. As he put it, a "cloudy climate" was present within the school. In such settings (bilingual or monolingual) the site visitor may only be tolerated, since the participants are helping only unwillingly, and in fact may never have approved of the site being included in the study in the first place.

Herriott (1977), and Knapp (1979) elaborated on several of the problems facing the field work ethnography conducted during Project Rural, a study of rural school environments, funded by NIE as part of the Experimental Schools Program. Field workers resided at each of ten school districts for three to five years. Among the issues that rose in conducting the field work were the following:

- Research problems were difficult to define due to conflicting "agenda" between sponsors (sites) and the study per se;
- Potential informants were highly suspicious of the field workers, making the needed rapport difficult to create; the role of the field workers was perceived as ambiguous;
- Since rural school systems have relatively few personnel, it was difficult to disguise identities and protect confidentiality; and
- Field workers had to adjust to complex role relationships and unfamiliar accountability pressures, and were generally uncomfortable.

To be sure, the instances reported above represent real issues in an observer's establishing rapport and trust, and in conveying an accurate impression of his/her role to all informants. However, for the most part these problems can be overcome through using a series of well-chosen approaches. Supplying early and accurate information about the goals of the study, the extent of the data collection effort, how the information will be used, what results or other forms of feedback will be supplied data sources, and the caliber and ethnicity of the field workers should be done in a sensitive and flexible way so that the site is fully informed. There may also be a need to supply information to key site personnel at different levels (i.e., "going through channels") and in different ways. Thus the school system superintendant, relevant principals, project directors, teachers and leading community representatives may need to be contacted with a written, factual explanation of the study scope, needs, and time frame and oral presentations be made by a study investigator to clarify any questions raised by the written materials. The training provided observers should stress the need to sensitively deal with informants in a culturally appropriate way, and to maintain "a low profile." It may also be useful to have field workers maintain contact with the central office to discuss their relationships with the site and/or particular informants or data sources, both in the initial stages of entering a field setting, and periodically. If necessary, central office staff should visit a site during the ethnographic occasion to unobtrusively review the prevailing social climate and receptivity to the observer, and judiciously resolve any issues. Such an approach might particularly help in large urban school systems having multiple language groups of students in its bilingual education program.

3.5 The Nature of Ethnographic Protocols

Because of its goals, the corpus of ethnographic material is at once voluminuous and a rich source of ideas for developing theories and testing them, and for eventually formulating observational schedules and variables which in a comparative sense "fit" the setting or multiple settings. Exhibit 6 (taken from Berliner, Tinkunoff, and Rist 1975, and reproduced in Goodrich 1980) illustrates a single page from observing a classroom, and is included to provide a visual sense of the scope of information gathered.

> "Conventional ethnographic research produces an "ethnography," a dense, vivid description and analysis of the social setting being studied, typically several hundred pages long or more. Its purpose is to convey in detail the workings of an intricate social system

EXHIBIT 6

A Sample Prose Protocol of A Classroom Microethnographic Study

Protocol Number: 23
Name of Researcher: F. D.
Date of Observation:
Subject of Observation: Formal Observation of Mrs. M Fifth Grade Class

1. Solo Observation of Reading
2.
8:48/1 3. 19 students are present, ten boys, five Chicanos.
4. The time is 8:48, the noise level is 1. The class
5. comes in and immediately goes to their seats. The
6. teacher is standing in front looking at the class.
7. Kurt, who sits all the way in front on the left, is
8. talking loudly with Mark. The teacher is saying nothing
9. to him, but is looking at him irritatedly. The teacher's
10. initial comments to the class involve asking where
11. various people are today. Many people are absent
12. today, about five, I believe. She says in a quiet
13. conversational tone, "Since Chris isn't here today, the
14. Vice-President will have to lead the pledge." Pam, the
15. Vice-President, comes to the front of the class and
16. says, "Stand." After this the teacher calls for the
17. secretary to come up to put up the results of the Lunch
18. Count. Pamela calls out every name in the class, as in
19. Roll Call. When people are called on, they say whether
20. or not they want to buy hot lunch, just milk, or no
21. lunch. After this the teacher introduces me briefly.
22. After this the teacher says that Mrs. H class can
23. go. The lower half reading voice of Mrs. M class
24. goes over to another classroom, while Mrs. M
25. gets the lower half of the other classroom.
26. Between the time and Mrs. M half leaves and
27. the other half arrives, nothing much happens. Mrs.
28. M is talking to the T.A. The others come in
29. and take their seats. Somebody has already put paper
30. around all the tables for people to use, just blank
31. paper. Now that everyone has taken their seats, Mrs.
32. M asks, "Sean, why don't you pick up the papers that
33. aren't being used?" He goes around and picks them up
34. from all the empty seats. Now with this change in
35. students, the classroom has 19 students, 9 girls,
36. five Chicanos. She gives assignments to the class.
37. There are two different groups in the class, Open High-
38. way and Sleek Otters, these being the names of the
39. respective books. Each group has its own assignment.
40. Carl comes in late from the other class. The teacher
41. says, "Sit down and open your book." The teacher
42. compliments the class on their improvement in their
43. spelling tests. Now it's time for the entire class to
44. review for the coming spelling test. This is among the
45. assignments that are written on the board. Since it's
46. Monday, [illegible] the final test for the spelling words will
47. be on Friday, the teacher reads the words to the class
48. and they are to copy them down five times, they are
49. all printed in the spelling books. Spelling words are

> or some aspect of one. It takes a long time to do an adequate job since writers suggest that an equal amount of time must be devoted to the writing of an ethnography as is devoted to the gathering of field data." (Wolcott 1975, p.118 in Knapp 1979)

Sindell (1969) noted that Smith and Geoffrey in 1968 had used a particularly effective method to clarify and expand their field notes, termed "interpretative asides." While writing field notes, one of the two researchers took time out to write down any insights or tentative interpretations which occurred to him as he was observing. Such insights later played a major role in developing hypotheses. Thus the method was useful in developing hypotheses, returning to the ethnographic data to test them, and then elaborating on these, all in all a very sound approach. Rudes (1980) also strongly advocated having off-site analysts use these expanded versions to prepare comparative analyses of features gleaned from the protocols of multiple sites and field teams.

Wilson (1977b, p.26) stressed that,

> "the qualitative research enterprise depends on the ability of the researcher to make himself a sensitive research instrument by transcending his own perspective and becoming acquainted with the perspectives of those he is studying."

To do that requires an understanding of how the ethnographer affects the data, which includes: the researcher's role, training and experience, theoretical orientations, personal feelings about the topic, and the purpose of the field study. The perspectives of the participants also matter in dealing with the narrative products. The latter factors include: the length of time the researcher spent in the setting and how regularly he did so, with whom he spent that time, his comprehension of the participants' language, how he was perceived by various groups, if variance existed in how he understood the perspectives of various groups, and some of the negative evidence for his reports.

3.6 Ways of Reducing and Analyzing Ethnographic Information

A number of methods exist for gleaning patterns of human behavior information from the large amounts of ethnograhic data generally presented. Some methods are solely qualitative, relying on forms of content analysis, thematic or taxonomic analyses (Spradley, 1979). Still other methods prepare narrative summaries (Beers and Knapp, 1980; Rist 1980). Other approaches attempt to distill the information

into coding categories which "fit."* Following that step, other approaches either turn to univariate and bivariate statistical techniques (such as cross-tabulations of language use patterns) or to more elaborate techniques. If warranted, some studies turn to computer-based data management systems and generalized, large-scale/sophisticated statistical software. Some of these methods are described below.

3.6.1 Preparation of Essays

Beers and Knapp (1980) had site-based local personnel write three-five page essays periodically throughout the school year, using specified themes which described the implementation operations and dynamics of Teacher Corps projects. To analyze these, case study team members performed a primary reading and content analysis of a specified set of such essays from the projects. The same reader was assigned to the same set of projects throughout the national evaluation. This stage (of the primary reading) was intended to determine the useful information. Telephone contacts were made with local personnel writing these essays as needed to clarify or amplify issues. The reading also was to highlight important issues (adding notes in the margin and on a summary worksheet), and to identify and make copies of key illustrative passages for inclusion in reports.

After synthesizing all projects' essays, reports were prepared that summarized findings, pointed out major comparisons and contrasts, major examples, and preliminary hunches. Although not conforming exactly to ethnographic case studies, they still were deemed useful for elucidating the types of dynamics and factors occurring in the projects, during their implementation per se, and the various interactions.

Rist (1980) also used ethnographic case studies in combination with quantitative approaches to appraise employment training and education efforts at CETA-funded programs. The study team approach to data reducation consisted of assembling a copy of each and every protocol generated by observers (a total of 1807) in the main headquarters of the study, which became the core of a continuous monitoring system of field-produced material. In addition, three-five page analytic narratives were prepared by observers in response to central office staff questions; the questions focused on key policy issues.

*For example, the Constant Comparative method of Glaser and Strauss (1967), the basis of "grounded theory."

In organizing the 1807 protocols and their narrative summaries, the initial starting point was that of complete, accurate and detailed field notes. Observers were trained in styles of note-taking and ways of converting them into protocols. (The study policy was not to use mechnical devices such as tape recordings since these were considered to inhibit spontaneity and candor. No mechanical devices were therefore used during site observations unless otherwise agreed upon with the individual site observer.) To aid in the reduction process, one copy of each protocol was sent to the study project director. Central staff read the protocols promptly and contacted the observers as needed to clarify points and fill-in omissions or to improve the interpretations. Additional strategies or observational activities were suggested to provide data for addressing particular probing questions.

A series of coding and editing steps was used thereafter. Code sheets were developed to deal with each of the analysis packets, based on a coding framework necessary to answer the study's key policy questions. This approach also permitted using a standard conceptual approach which could be applied across all sites, since Rist acknowledged that using multiple frameworks across multiple sites had in the past detracted from the ability to generalize and develop recommendations. Following the coding stage, descriptive statistics were prepared.

Levine (in Naroll and Cohen 1970) also offered five general guidelines to assist the researcher in the design and interpretation of data gathered in anthropological studies. These guidelines certainly apply to ethnographic research in bilingual classroom settings and consist of the following information:

- Multiple Instances - operationalize crucial features or variables so that as many instances as possible of them occur within the observational period. (This might mean "being alert" to teacher proxemic behavior in relation to a reading group.)

- Multiple Indices - measure certain issues or variables in as many ways as possible, i.e., find as many relevant indicators as possible.

- Multiple Tests - test likely hypotheses or interpretations in more than one setting, or if limited to a single site, subdivide the population units or types of informants along meaningful, locally recognized group boundaries (perhaps social or reading groups) within each of which the hypothesis can be tested (termed by Whiting "subsystem valiation").

- Multiple Hypotheses - use rival, alternative hypotheses of causal influences and relationships, and collect data to test each of them, thus increasing the certainty of generalizations by being able to rule out competing explanations.

- Multiple Phase-Specific Conditions - implement cross-sectional approaches or longitudinal analyses of behavioral change over time to estimate the influence of events and factors external to the setting being observed.

3.6.2 Microfiche Approaches

To deal with large masses of narrative information, some of the feasible approaches that now exist include the following. All narrative pages can be reduced to a 4x6" microfiche, a reduction ratio of 20 to 1. This is the approach used by the Human Relations Area Files (HRAF; Lagacé, 1974) which uses a continuous filming process to accommodate up to 168 pages on any single microfiche. In doing so, segments of any microfiche (or groups of pages) are separated by "flasher pages" indicating the beginning of a particular category of information. The categories are based on the Outline of Cultural Materials (OCM), a classification system with over 700 subject categories and 79 topical sections. In any one page of actual text, OCM numbers (three-digit) appear alongside the corresponding passage of material, for future verification of the assigned code. The OCM system could be adapted to bilingual classroom purposes, or a similar microfilming coding schema could be developed to reduce the physical volume, and classify themes and passages in some systematic way, without disrupting the context in which they appear.

3.6.3 Development of Coding Frameworks

Lebar (in Naroll and Cohen 1970) acknowledged that ethnographic statements, by their very nature, are complex and potentially non-comparable. Culture-free common referents for making comparative statements are very difficult to achieve. Instead, generalizations may serve as the basis of cross-cultural coding.

Two basic types of coding schemes are ordinarily used: scalar and typological. The first grouping is some form of scale, continuum or rank order, with which units are assigned (degree of participation of the class, extent of code-switching). The typological approach would develop categories, which are mutually exclusive and completely exhausive, and assign a unit of observation to such a category. Multiple response categories also can be formed if more than one type of

behavior is plausible as a possible response. Since the initial coder may be biased by a pre-determined hypothesis or some otner orientation, such as hoping that a formal model will be confirmed and "things will fit," these coding attempts should be independently checked by using another coder who lacks the predetermined feel for the model or prior hypothesis. Coding rules in general should be made explicit, and be presented with the findings developed on the basis of the coding activities.

As an example of one such code, Lagacé (1974) reported that the HRAF classification system in the Outline of Cultural Materials (OCM), is highly extensive and actually consists of various levels of coding detail. Certain codes are broad and abstract, others are reserved for highly detailed information, others for symbolic or ideational behavior, others are Emic in form, while still others are at a scientific level of abstraction and knowledge suitable for a highly trained observer. These OCM subject category codes are applied to the text information in the HRAF Files on a sentence-by-sentence basis, though most category numbers apply to a paragraph at least. Category numbers are assigned either singly or in groups, based on how many subjects are discussed in that block. The OCM number(s) appear in the margin of the page opposite the beginning of the first sentence to which it applies. As another feature of the system, a three-digit category code is used wherever possible rather than the broader two-digit code form. When storing the information, file pages referring to more than one subject category are stored under each appropriate subject category. The coding format, and even considering those which are the result of more complex coding dimensions (or frames), produces numerical or categorical codes potentially compatible with computer programs (Whiting and Whiting in Naroll and Cohen 1970).

A three-level hierarchical coding system developed by Robert Carrasco (personal communication, 1980) lends itself directly to scoring of VTR tapes, while being directly compatible with software packages such as SPSS. The coding levels represent macro contexts coding , macro subcontexts coding and micro level coding of interactions. The coding frames, which may consist of three-digit codes, are used with review of videotapes for breaking them up into units of analysis or levels. Thus it becomes fairly easy to assign codes to timed boundaries or portions of the videotape.

Coding frameworks have been very useful when applied to classroom processes in both monolingual and bilingual settings. As reported by Amarel (in her 1980 review of Mehan's 1979 analysis of social organization in classroom settings) the

constitutive ethnography approach* he developed (See also Mehan 1978) rested on comprehensive analyses of observable interactions and mappable sequences within it. A small amount of data was used as the basis of generating a provisional analysis scheme, which was successively modified as it was tested against larger and larger subsets of data. The process was concluded when the rules which were developed satisfactorily fit all of the data in the corpus of information gathered. The data were comprehensively analyzed and maintained in an unreduced form throughout the analysis.

Rodriguez-Brown et al. (1976) employed a coding system to analyze VTR data. Their coding system was premised on its being easily taught to naive coders, not being inferential, and not requiring much in the way of tape transcription. They coded every interaction in the language environment of the target children, in the bilingual classroom, and only target children - peer interactions in the English classroom settings. Each interaction was coded on the following dimensions:

- Initiator
- Addressee
- Number of seconds of speech in Spanish
- Number of seconds of speech in English
- Context of the interaction
- Gloss of the interaction, and
- Code switching within the interaction noted and transcribed.

Rodriguez-Brown and Elias-Olivares (1980) are currently performing an NIE-funded study of communicative competence, and similarities/differences between speech patterns of Spanish/English bilingual children who are eight years old, and who have different levels of proficiency. Using sociolinguistic-ethnographic methods, primarily those developed by Dell Hymes, they are studying speech samples gathered in the home, community and school settings and will analyze these via discourse analysis. An adapted form of the Sinclair and Coulthard (1975) taxonomy will be used to analyze the speech data.

Cherry reported (in Griffin and Shuy et al. 1980, as yet unpublished) that the Kindergarten lessons gathered as naturalistic data samples were analyzed via the Sinclair and Coulthard 1975 and Mehan et al. 1976 frameworks. Limited

*This approach also has been termed "context analysis," and "micro-ethnography," the latter by Erickson (1977) and his colleagues.

support was found for a teacher expectation model, stating that teachers interact to a different degree with students regarded as differentially competent in communication skills.

As a final example, Erickson (1977) used Philips' theory of participation to study children and adult interactions on an Odawa reservation in Northern Ontario. Minimally edited audiotapes, videotapes and cinema film were analyzed for the social organization of interactions. Recurrent events were systematically sampled in the daily rounds of teachers and students.

3.6.4 Statistical Techniques

For the most part, ethnographic information has been analyzed by using descriptive statistics such as frequency distributions, percentages, counts, ratios and cross-tabulations (See Rodriquez-Brown et al. 1976). Contrastive linguistics techniques also have been used.

Speaking in general, McEwen (1963) stated that "the development of methods of analysis to improve the empirical validation of theoretical ideas in social anthropology is a major problem facing all researchers." (p.168) As a potential approach to deal with this issue, McEwen suggested the use of graph theory to deal with mediating roles and groups, i.e., viewing a social group or some larger social network as an interactional graph, connecting the points by a path, and noting the person who would be a sole link between two other persons or groups as a cut point in a connected graph. Extending this idea, it may be applicable to mirroring peer-peer interactions across behavior events or focusing on social dyads in the classroom or subgroups of the classroom setting.

On another topic, Mitchell's forthcoming book, entitled Numerical Techniques in Social Anthropology (1980) expands on several mathematical techniques plausible and useful for handling fieldwork material. The relevant techniques include: those for categorical data (cross-tabulations and contingency tables); multidemensional scaling to reduce the number of underlying dimensions in the created variables; binomial series tests, of the likelihood of certain sequences occurring; and graph theory for dealing with various levels of relationships. All of the techniques are applied to conceptual issues in social anthropology, but conceivably have a parallel in classroom ethnography or in cultural investigations of community contexts affecting the bilingual classroom setting.

As examples of other statistical techniques used in the field, Jacob (1979) used path analysis with cultural variables, measures of immediate environment, Puerto Rican child's age and sex, and frequency of speech at home to test a conceptual model predicting children's cognition. Bishop et al. (1979) also used discriminant function analysis and profile analysis methods to study language use patterns with Spanish bilingual classes.

3.6.5 Merging Qualitative and Quantitative Data

This is not a straightforward procedure, for a number of reasons. Generally, researchers offer to use the qualitative studies as "background" for interpretation of quantitative results. However, most often the qualitative studies physically occupy different chapters and are not joined in some coherent way. This is despite the fact that a number of researchers and ethnographers (among them, Wilson 1977b) consider ethnographic research to be as systematic as any other approach to searching for answers to questions, and developing and/or testing theoretical points of view.

Cooley (1978) pointed out that, as Paul Lazarfeld had recognized,qualitative-quantitative studies are not either/or arrangements but rather a matter of degree or emphasis. Such types of researchers should work together to gain an improved understanding of educational processes. Quantitative approaches can benefit a great deal from rich descriptions of classroom and school processes as working toward the goal of providing more convincing causal models of the processes of schooling. Qualitative studies can benefit from the quantitative concerns for reliability and validity.

With perhaps this in mind, Arvizu presented an overview (at the conference held under the auspices of this subcontract, "Current Issues in Applying Ethnographic Methods to Bilingual Classroom Research") of how the Bilingual Education Community Study Project at California State University, Sacramento is currently using qualitative and quantitative methods to study symbolic interactions. As indicated in Exhibit 7 (supplied by Arvizu at the conference) three interrelated (and perhaps concentric) contexts, the community, school and bilingual program are being studied by using a series of qualitative approaches which each supply information on different facets of the context. The same is true of the quantitative techniques being used, which supply data on factual, attitudinal, and statistical variables. Three levels of the study exist, with the first, and the basis for the other two levels, being descriptive ethnography which lasts one year.

EXHIBIT 7

FRAMEWORK FOR RESEARCH
(Symbolic Interaction)

ETHNOGRAPHIC STUDY

STUDY OF COMMUNITY	STUDY OF SCHOOL	STUDY OF BILINGUAL PROGRAM

METHODS

QUALITATIVE	QUANITATIVE
1. Participant Observation	1. Census
2. Event Analysis	2. Survey Questionnaires
3. Life History	3. Archival and Document Search
4. Comparative Interviewing	4. Content and Frequency Analysis of Records
5. Ethnographic Filming	5. Economic, Employment Political Trend Analysis
6. Micro-ethnographic	
7. Projective Techniques	

LEVEL 1 -	Descriptive Ethnography	(first 12 months)
LEVEL 2 -	Trend Analysis	(second 12 months)
LEVEL 3 -	Theory Building and Hypothesis Testing	(Follow-up to study)

Jacob (1979) also prepared a very thoughtful integration (pps.17-42) of now to recursively combine ethnographic and quantitative approaches based on her work with Puerto Rican children. The tradeoffs in using each approach, and their complementary roles in a research study -- at each point -- are indicated in a thorough way. For example, discussion is given on how ethnographic data can be used to: explore the local signficance of earlier-developed hypotheses, terms, categories and variables, identify new, locally significant variables and hypotheses, permit a fruitful modification of methods to the local setting and place the study in context.

As this section has attempted to indicate, there is a definite place for using both qualitative and quantitative approaches in a study, if the reasons for their use and their relative benefits can be kept in mind.

3.7 Issues in Computer Reduction and Analysis of Ethnographic Information

Although third- and fourth-generation computer environments now exist for large-scale computer models, and minicomputers and microcomputers are on the horizon with varying levels of features, software, documentation, and customer (user) technical support -- narrative (or "character") information remains a lightly-touched upon area. Numerical "crunching" has advanced much more than has character-handling capabilities among computer features. Thus, the sheer volume of narrative, verbatim and annotated fieldworker pages either directly gathered or prepared from transcribed VTR/audio portions, cry out for computerization, if complex and refined analyses of intra- and cross-cultural themes are to be prepared. Here we are addressing the purely narrative form of the field materials, not: (1) the fairly systematic reduction already available when a coding schema (or several such) is pre-determined to be used in checklist or inventory form (e.g., whether or not a bilingual teacher engages in code-switching, or invites student responses), or (2) data developed by raters coding the narrative information based on coding frames and a thematic analysis of the predominant dimensions.

When the materials is made ready for computer data processing, the issues are somewhat different since they become fairly conventional (although important) and include: data base design, file and subfile structure layouts, file management and data editing, compatability of information across files for multiple file access, and various levels of statistical and descriptive analyses. The latter may range from those for nominal and ordinal numerical codes (presence or absence of certain language use patterns, non-verbal behaviors; sequence

of certain behavior events occurring in lesson presentations as transition activities) to those representing more interval and ratio scale of measurement information (frequency of time on task by the dominant language and in English; number of lessons which use team teaching; relative amounts of practice on certain instructional objectives). For these initially-recorded or now-converted numerical codes and distributions, a number of generalized statistical software packages such as the Statistical Analysis System (SAS), the Statistical Package for the Social Sciences (SPSS) or others can deal with a large number of these needs. Large volumes of data in the form of files, observations and variables can be processed, in readily labelled format. Relatively speaking, the key hurdles are somewhat over, although other types of issues may exist such as the need for more statistical tests in the generalized software package.

The Scientific Information Retrieval (SIR) data base management system has been deliberately designed to be compatible with the SPSS package (SIR, 1979). In terms of needs which relate to bilingual classrooms, SIR has such useful features as the following:

- a case-oriented hierarchical file structure which permits data from students, classrooms containing those students, schools containing those classrooms and districts housing those schools to be meshed for analytic and retrieval pruposes;
- variable length data records, likely to exist if certain narratives are longer and more detailed than others;
- variable length data elements (or character strings) if certain classroom events are richer in detail than the same event conducted in another classroom of the same grade;
- capacity to locate the same theme (or subset of a character) if it is present in two occasions of observation;
- sorting of characters;
- preparation of frequency distributions of the occurrence of particular character strings; and
- compression of large mass of data into a series of one-character codes once the narrative pasages and each character string has been coded as desired thus a three-digit code can be compressed into a one-character code (or a reduction of 67 percent).

The Statistical Analysis System (SAS 1979) is another flexible file management and highly advanced statistical analysis package Its character handling abilities include the ability to deal with character strings of up to 200 letters and embedded blanks. (In terms of words in a narrative passage, this corresponds to about 10-15 words, depending on their length.) The SAS package also can collate character strings, compress them, index them (in terms of their first occurrence for a first one), and similar features, such as reading strings whose lengths differ.

The capacity of these software packages is a factor in their utility. SAS handles up to 4000 variables. SPSS handles up to 500 active variables (those involved in the analysis at any one time), but using archive files, can make available 10 archive files of 500 variables each for merging with those needed, and supplying the active variables needed from any of those archive files. The latter description applies to version 8.0 of SPSS. However, version 10.0 of SPSS, due to be released in spring 1981, will use dynamic storage procedures and therefore will have almost unlimited numbers of variables and cases which it can include in the analyses.

As examples of other relevant computer statistical software, the HRAFLIB is a computer program library specifically designed by HRAF (1979) for large computers such as the IBM 370 series and the CDC 6400 series, and moreover, is written in FORTRAN IV for hologeistic (cross-cultural) research. As such, these programs deal both with traditional data analysis issues and those pertinent to cross-cultural research. The HRAFLIB includes programs which perform: correlations of categorical data and strength of association tests (Kendall's tau-b, gamma, Somers' D statistics), three-way causal analysis, significance tests, product-moment and point-biserial correlations, and causal analysis using more than one time period per case (cross-lagged and longitudinal analyses). Ethnographers also may be familiar with the Datamite software system which uses binary data, and the work of Eckman at the University of Chicago.

As a related idea, the AMBUSH computer program, written in the IBM 370 Assembler language, performs a stochastic microsimulation of kinship rules and other features of closed breeding groups. Although the computer programming logic is not directly applicable to bilingual education context (except perhaps in a macro-ethnographic scope), there may be some relevance to conceptualizing and programming a stochastic model of the instructional consequences ensuing from particular features in the future.

3.8 Closing Remarks

As is apparent from the issues discussed in this chapter, certain salient ideas represent the core of conducting sound ethnographic research especially in bilingual classroom settings. Such ideas include: (1) the appropriateness of the theoretical system, (2) the rationale for using, and relative merits of using mechnical aids, (3) the need to apply feasible coding frameworks to narrative protocols, and for some studies, (4) how to compatibly integrate qualitative and quantitative approaches to enhance the analytic and interpretative properties of each. Chapter 4 of this report therefore is devoted to summarizing and clarifying the methodological issues in the field, and to suggesting "best" directions for future ethnographic studies of bilingual settings to take.

4.0 IMPLICATIONS AND SUGGESTIONS FOR APPLYING ETHNOGRAPHIC METHODS IN FUTURE BILINGUAL EDUCATION RESEARCH

4.1 Purpose of Chapter

This chapter summarizes the conceptual and methodological issues examined in the previous chapters of this paper which affect the application of ethnographic method to research studies in bilingual education in the United States. At the same time, it attempts to integrate the significant issues discussed during a conference on "Current Issues in Applying Ethnographic Methods in Bilingual Education Research," held on June 24-25, 1980, as a part of this subcontract, at Development Associates, Inc., Arlington, Virginia. (See Appendices 1, 2, and 3 for the list of attendees, conference agenda, and conference goals, respectively.) The aim of this chapter is not only to summarize discussion from these two sources but to identify and clarify the major implications of applying ethnographic and related methods. In doing so, we intend to suggest, based on these sources of information, major directions that future research studies of bilingual education can and should take, with respect to applying these methods.

4.2 The Ethnographic Method

Evidence from a great variety of sources suggests that ethnographic methods and ethnographically-oriented methods are becoming transformed into something like a movement. A recent writer (Rist 1980) described this movement in an article entitled, "Blitzkrieg Ethnography." One now detects a sense of loss of intellectual excitement over quantitative methods. (This is an understatement in bilingual education research.) There is a sense that such research has almost reached its outer boundaries. In the last five years, changes in federal government research policy has provided more encouragement for the use of ethnographically-oriented methods. There is greater emphasis on research activities which foster "close-in" and "hands-on" approaches, as well as approaches which raise an authentic and fundamental question, "What's really going out there -- out there in the field?" The general research climate is beginning to change in the ethnographer's favor. The small group of ethnographic researchers who were once found in education, who were largely trained in anthropology and sociology, have now grown into a flourishing movement. Individuals from diverse disciplinary backgrounds now employ ethnographic methods. There is encouragement to apply ethnographic methods to diverse types of social and cultural phenomena. The new-found popularity of ethnographic method is also likely to result in changes in both its methodological applications and perhaps in its epistemological foundations.

Under the pressure of such circumstances, it appears that ethnography may run the risk of becoming "a mantle to legitimize much work that is shoddy, poorly conducted, and ill-conceived" (Rist 1980). However, these are potential risks for any method.

Despite the methodological caveats cited in earlier chapters, the application of ethnographic methods in the study of bilingual education appears highly appropriate. Generally speaking, the method is well-suited to the object of study for these and similar reasons:

(a) bilingual education is a class of culturally and linguistically complex phenomena

(b) bilingual education is inadequately recorded and understood by researchers using other methods

(c) quantitative methods are inappropriate for areas of behavior that are context-sensitive (or where adequate measurements are lacking), as in bilingual education

(d) the study of bilingual education requires a rich data base, permitting examination of complex relationships between observed behaviors and sociocultural contexts

Ethnographic approaches to such a phenomenon as bilingual education emphasize: (a) a lengthy process of participant observation (sometimes making use of mechanical recording devices); (b) a process of discovery and exploration of the Emic structures in contexts (the insider's or participant's view); (c) in analysis, extensive use of hunches, preliminary hypotheses and hypothesis confirmation in an iterative fashion; and (d) behavior and interactions in naturalistic settings. There is a common misconception that ethnography is a presuppositionless or assumption-free method and that the ethnographer "takes everything down" in a field notebook. This was probably more the case with classical ethnography but it certainly is not for the types of bilingual education research contemplated here. The ethnographer's theoretical orientations and research questions are essentially guides to an ethnographic study, which bear significant relationsnips to the more familar modes of social science data collection, analysis and synthesis, and interpretation of findings.

4.3 Conceptual and Methodological Issues

As emphasized in the previous section, the choice of theoretical perspective overrides and permeates all other considerations in ethnographic research. It has sometimes been assumed that the ethnographer embarks upon his/her research with the theoretical equivalent of a tabula rasa. Clearly this is not the case. The

ethnographer's motivation for undertaking fieldwork is a product of his/her curiosity about the answers to questions pertaining to the object of study. These questions do not arise in a vacuum. Rather, the nature of the questions and the kinds of information sought are determined by the ethnographer's theoretical perspective. This point cannot be made strongly enough. For example, an ethnographer choosing an ecological perspective would be concerned with questions of how the behavior of a particular group relates to the environment in which it finds itself, and how the behavior of this group compares to that of other groups in different environments. An ethnographer with a structural perspective, on the other hand, would deal with how the group segments its own behavior and the environment in which it finds itself into units which enable the members of the group to effectively deal with each other and the environment.

The theoretical perspective of the ethnographer also determines the kinds of analysis to which the data will be submitted, and to an even greater extent, the coding and indexing systems to be used in storing the data. All coding and indexing systems require a structuring of the data into more or less mutually exclusive, completely exhaustive categories. This presumes an analysis of the data into taxonomic categories, the choice of categories being based to a large extent on the theoretical perspective of the researcher. For example, in analyzing data from educational research, the division of the data into that involving education in bilingual classrooms versus that involving education in monolingual classrooms is based on a prior assumption of a theoretical nature that meaningful differences exist between the two to warrant a categorical distinction. Another example is that of transitional activities between lessons which also can be categorized on different bases.

Returning to the broader aspects of theory, all ethnographic research is undertaken with the goal of seeking out the answers to certain more or less explicit questions. While as stated above, the specific nature of the questions asked is theory-bound, there are certain general comments which may be made about the broader types of information which ethnographic investigation is most suited to gathering. Generally speaking, ethnographic research is best suited to investigating areas where there is insufficient information for the formulation of the kind of explicit hypotheses necessary for undertaking quantitative research. Thus, ethnographic research is best suited to parallel exploratory data analysis in the latter domain. Furthermore, ethnographic research is considered highly appropriate to the investigation of areas where the accumulated knowledge, though abundant, is still somewhat disorganized and is considered inadequate for answering certain types of questions, or for formulating testable hypotheses about certain

issues. In this latter case, one speaks of ethnographic research as enriching the data base, or providing greater depth. To provide a concrete example, the data base on the relevance of such factors as time-on-task and class size to student learning is considered adequate for the formulation of explicit hypotheses which may be tested using quantitative measures. A number of studies such as those conducted by AIR with bilingual classrooms or the Instructional Dimensions study have dealt with this issue. However, when addressing such questions as: (1) how do the verbal and nonverbal communication patterns of the instructor, when interacting with the students in a classroom, affect their learning behavior, or (2) how do the cultural attitudes of the students toward the overall educational process affect the structure of classroom instruction, or (3) how does the student's role toward other students and the instructor affect learning, then available information may be inadequate for the process of formulating explicit hypotheses and variables for use as quantitative measures. Here, ethnographic research can provide precisely the kinds of information needed.

However, large-scale ethnographic research raises a number of issues which are not normally confronted in single site, single ethnographer research. These include the problems of the comparability and generalizability of ethnographic data. Here the first question is, what should be compared. That is, are comparisons to be made at the level of form, of function, of general patterns, etc.? The general consensus among classroom ethnographers would appear to be that, whatever the unit of comparison, it should be at a level which taps the similarity of function rather than that of merely form. This generally agrees with the assumptions of most comparative and cross-cultural ethnographers. This may be illustrated by an example presented earlier in this work. In Chapter 2, we noted the hypothetical case of a researcher observing six classrooms in each of which, a male student was observed to erase the blackboard at the end of class. If comparisons were made here at the level of form, the resultant analysis would state that six identical instances of behavior had been observed. However, in discussing this example, it was noted that there was a different motivation for the boy's erasure of the blackboard in each of the six classrooms (i.e., instructor structured classroom routine, student being ingratiating to the instructor, accidental lapse in classroom routine, punishment, etc.). Thus, a comparison of the observed behavior in these six classrooms in terms of the <u>function</u> of the behavior, rather than its stated form <u>per se</u>, would produce an analysis stating that six different behaviors having <u>identical</u> manifestations (or "common data elements") had occurred. The comparison at the level of function thus better reflects what was really occurring in these classrooms from the perspective of the participants, and a better understanding of

the implications of the instructional process for the children involved.

In large-scale, multiple-site research, functions and general patterns of behavior on the individual sites should be compared across sites in order to yield the most insightful analysis.

A number of other issues also affect the comparability of data across sites. The very nature of the data acquired is dependent on the theoretical perspective of the ethnographer as discussed above. Thus, where more than one ethnographer is involved in acquiring and analyzing the data, it is imperative that they share to the extent possible the same theoretical perspective. This cannot be stressed too strongly, and must be a major goal of any training which the ethnographers undergo prior to undertaking data collection. It also should be monitored during the ongoing data collection process.

Another issue critically related to the comparability of ethnographic data is site selection. There is widespread agreement that for making valid comparisons, the initial data must come from the widest possible variety of sites. In bilingual classroom research, for example, sites must be chosen such that they represent a generally representative cross-section of the different types of such classrooms which exist. A probability sampling design would be preferable, although at times a carefully chosen purposive (nonprobability) sample may suffice, based on study purposes and the number of sites available. For example, variables such as size of class, type of funding, urban-rural mix, language(s) spoken by the site population, years in operation, should be considered in preparing a stratified random sample. Failure to use meaningful stratification variables could easily result in invalid or trivial comparison results. For example, if all sites were casually drawn and consisted of classrooms of: approximately the same size, same years in operation, same language mix (e.g., all Cuban Spanish/English programs), etc. comparisons of the fairly homogeneous data likely to arise from these sites could hardly be said to be valid for bilingual classroom instruction in general. That universe is simply too diverse. However, subgroup comparisons would be feasible across sites which share a common feature yet which vary on others.

This also leads to the question of the generalizability of results from comparative analyses. For the results of such comparisons to be generalizable to new sites not included in the study, the results must be based on a data base with wide variablity. Thus, if one uncovers a general pattern of behavior or a function which applies across a number of heterogeneous sites, it is probable that it will also be applicable to new sites.

Taken another way, probability sampling is probably not applicable to selecting sites for an ethnographic study of bilingual education. However, some form of cross-section of sites, which permit some degree of variation, is useful. At best what can be applied to the process of site selection is purposive selection of sites, schools within sites, classrooms within schools and students within classrooms. This hierarchical approach permits richer analyses of overlapping contexts. Nonetheless, within this approach, one aims to ensure that the sites, schools, classrooms, and students selected represent adequately the variations one hopes to investigate. Such purposive sampling, however, does not diminish the need to give a careful rationale for selection.

4.4 Ethical Issues in Ethnographic Research

Quite apart from the theoretical issues involved in undertaking ethnographic research, there are very serious ethical considerations which must be faced. The following section lists some of the more important of these considerations:

- The way in which one enters the research site must be culturally appropriate. One does not simply walk into a bilingual classroom of Navajo children and begin taking notes. It would be necessary to have investigators secure the permission for this from the teacher, the principal and other administrative personnel, and in some cases, from the children's parents. It may also be culturally appropriate and conducive to the research atmosphere, though perhaps not technically necessary, to secure the permission of tribal leaders, or from the students themselves.

- Positive working relationships between the researcher and the site population must be maintained. This requires instilling trust, establishing rapport, and effectively conveying the ethnographer's sincerity and honesty. This is necessary for the continuation of the research, for the preservation of the site for future use by other ethnographers, and for the avoidance of negative attitudes toward the current research and/or researchers which might adversely effect the educational process being observed.

- Forms of immediate and long-range feedback must be supplied on site(s). The collective experience of ethnographers has shown that trust is maintained, positive working relationships reinforced and research generally facilitated when the site population feels it will receive something concrete from the research, and when this feeling is fulfilled. Feedback may take many forms, e.g., researchers providing products which the site population or school system can use (e.g., teaching materials, teacher training

materials, etc.), the rendering of services (e.g., conducting teacher or teacher aide training sessions, showing of classroom films to teacher/parent groups, etc.). Feedback needs to be judiciously and sensitively offered. In a longitudinal data collection process, immediate feedback may disrupt events at a site. Perhaps it should therefore be reserved for a later period, e.g., during final analysis stages when data collection has been nearly completed.

- Human subjects must be protected. Most existing statutes and formal guidelines for the protection of human subjects in research are oriented toward the concerns of experimental, quantitative investigation. The concerns of ethnographic research are, however, quite different; yet, they require equally firm standards of ethical conduct. For example, steps must be taken, in narratives, tapes and films (the "raw data") to ensure that the material gathered will not be used in some way to the detriment of the research subjects. This is particularly the case in descriptive, non-evaluative research, where the data and the data sources must be handled in such a way as to ensure that it will not be misused by others performing secondary data analyses or evaluations for other purposes. How this is done, e.g., by using pseudonyms or distorting voices on tapes when reporting the data, is a matter which the ethnographer must resolve with the research subjects, and in today's context, with the funding agency which is sponsoring the study and expects to receive all products generated by the study.

- Potential abuses of trust must be minimized. In the course of ethnographic research, the ethnographer may observe subject behaviors which if known to others might cause embarrassment or various problems. Also, the subject may give the ethnographer information in confidence which is explicitly or implicitly meant to go no further than the ethnographer (perhaps including off-the-record comments). An ethnographer must be aware of the probability of such situations occurring and be prepared to make decisions about how to handle them in a satisfactory manner. It must be remembered that the ethnographer is never obliged to report everything he/she observes. Decisions are made at every step of the data gathering and analysis process about what information is relevant and what information to disregard as irrelevant. Information of a confidential nature must be respected in the report process.

- A censorship right must be offered. To some extent, all ethnographers allow informants and data sources the right to edit and censor the data. This can be critical at one level for maintaining trust and access to the site, and at another

for ensuring confidentiality and preventing abuses of trust. While at first glance, giving the site population this right might seem tantamount to letting them perform wholesale cosmetic surgery on the data, distorting it beyond all possible use, it is generally found that research subjects normally request little if any editing of the material (and perhaps even appreciate the gesture of being permitted the chance to review it). Further, in the process of reviewing the data for editorial purposes, subjects frequently volunteer additional information and/or intuitive analyses of the data which are particularly useful and would not otherwise have been obtained. This has the benefit of increasing the validity of the ethnographic material, which will affect its quality in subsequent phases of the study.

The type of individuals serving as ethnographers, their relationship with the site and their professional suitability for work on a large-scale multiple site study, also needs to be seriously considered. This is the subject of the next section.

4.5 Team Research Management

"Team research" or "large-scale research" (i.e., compared with the situation in classical ethnography of one site-one ethnographer) places relatively greater demands on conducting ethnographic research in a variety of ways. For practical and theoretical purposes, two or more ethnographers at two or more sites can be said to constitute "team research" or "large-scale research." Such a scale of research poses both new conceptual and methodological issues, as well as problems of logistics. Needless to say, the greater the numbers of ethnographers and sites, the much greater the problems of logistics, comparative data analysis, and similar issues, as well as the greater need for training and cross-site communication.

During planning of team research in ethnographic studies of bilingual education, it appears essential that field workers (who are responsible for data collection as well as data analysis) be involved from the onset of the study if at all possible. This is necessary in order to deliberately specify and digest the overall theoretical approach (or approaches) to be followed and the question (or questions) to be addressed in the study. Such early involvement of ethnographers in study planning is needed to ensure cross-site comparability, compatibility with study implementation processes, and uniformity in mechanical aid usage. Ideally, a management structure should give the ethnographer on site direct responsibility for all work and all visitors coming on site who are connected with the larger study. All ethnographers on a team should also have considerable input into central office decision-making which directly affects their work.

The selection of ethnographers and sites is to a great extent a function of the theoretical orientation of the study, and the questions it would like to answer. In most studies of bilingual education, the ethnographer should probably be bilingual in the languages of program participants and have native or "native-like" knowledge of the cultures of the groups. The latter is necessary if the ethnographer is truly to act as a "lense," and a complete and accurate cultural knowledge be brought to bear on the interpretation of ethnographic data. However, something less than this level of knowledge might be suitable, depending on the nature of the questions being investigated.

Further, the depth and richness of the data which the ethnographer collects is very much dependent upon the "sensitivity" which the ethnographer has for the group under investigation. "Sensitivity" is a cover term for a broad spectrum of atrributes including, but not restricted to: (a) the ethnographer's knowledge of the general culture of the group under investigation, or their world view, and (b) the ethnographer's ability to interpret behavior in terms relevant to the culture of the group observed, rather than his/her own culture. One method which has been proposed for ensuring a high degree of sensitivity on the part of the ethnographer is to select ethnographers whose cultural and linguistic backgrounds match that of the group under investigation. Thus, Navajo ethnographers would investigate Navajo sites, Cuban (rather than Spanish per se) ethnographers would investigate Cuban sites, etc. The alternative approach would be to provide intensive and prolonged training of ethnographers (or individuals with compatible orientations such as anthropology or sociology) in the general culture and languages of the site population. This latter alternative is generally inappropriate to funded research since the time frame for training of ethnographers is too limited to allow for such cultural and linguistic immersion.

In team ethnographic research, training becomes crucial. All members of the team initially need to be fully grounded in the particular approach or approaches being taken. Also, throughout the life of an ethnographic study, ethnographers must be brought together for periodic training, re-interpretations of theoretical orientation (if required), exchanges of viewpoints and discussion of methods of analysis. Even if such ethnographers may approach the work at their sites from a different theoretical viewpoint, it may be useful and productive to share their concerns. However, each must be obliged to maintain a firm, clear grasp of his/her own particular approach.

One of the principal roles of the ethnographer at the site must be that of gaining and maintaining entry into a site and local community. Initial entry into a site is likely to be time-consuming and will depend heavily on the personal

resources, skill, and tact of the ethnographer, and the perceived study quality, benefits of participating and "reputation" of the researchers (perhaps a firm or university) and the funding agency. The home office, must as a consequence, refrain from activities which might disrupt the ethnographer's work on site (See Herriot, 1977). An effective method of ensuring cooperation on site, as well as one which can contribute to the quality of data analysis and interpretation is to engage (perhaps monetarily compensating where culturally appropriate) participants as "co-researchers" and data interpreters.

The control of the quality of ethnographic data from multiple sites and multiple ethnographers appears to be largely matters of (a) initial selection of ethnographers (background, education, and experience), (b) training, (c) nature of the site and questions being pursued at the site, and (d) systems of communication and ongoing data review carried out by the home office staff. Of probably greater importance than any of these in ensuring data validity is the initial and ongoing formulation of the ethnographer's theoretical approach to his/her site and the perceived (and accepted) role which is to be achieved in training. Research managers can play an important role in all of these functions.

The economic and other cost of doing large-scale ethnographic research is extremely high. The principal costs are the: ethnographer's time on site, participant observations, field note-recording, expansion of field notes, the use of mechanical recording aids (including their purchase costs, specialized training for use, and transcription costs) retrieval and storage of large amounts of data, handling and analyzing data, and re-analysis of data from multiple sites.

There are clear pitfalls in doing ethnographic research on a large-scale basis. The greatest represent attrition problems in not getting access to a site or being asked to leave a site by local school authorities. Careful advance logistics and a sensitive observer, among other factors, are necessary to overcome this problem before it builds. Another problem is having to seriously revise a theoretical orientation to a site once study is underway because of conceptual or methodological problems. Another common problem is breakdown of specialized, expensive mechanical recording devices. It would also appear that when ethnographic research breaks down or fails, it does so prominently, in full view, so to speak. However, an ethnographic investigation that succeeds can supply, as Margaret Mead said, rich information that can be examined for one's lifetime. It is toward this goal that sound ethnographic methods are working.

4.6 Fieldwork and Other Data Collection

The keystone of ethnographic research is direct observation by the ethnographer. The ethnographer is the primary data collection instrument. His/her observations, as recorded in field notes, and the fuller ethnographic narrative composed from these notes, provide not only the primary data base of ethnographic research, but also the first analytic statement of this data. The ethnographer's direct observations and notes may be supplemented by using mechanical aids to record and analyze data, but they cannot be replaced by the latter. The particular choices of mechanical aids to be used in connection with ethnographic research depend very much on the kinds of questions being asked about the object of study and the kind of results anticipated. For example, while it might be highly appropriate to employ videotaping equipment to record interactions in a classroom (if the investigation concerned aspects of teacher/student nonverbal interaction) it might be equally inappropriate to use such equipment if the research were concerned with teacher/student verbal interaction (for which sound recording equipment alone would suffice). Similarly, a portable microphone attached to target children will not record their nonverbal interactions with a teacher. Given the costs of using mechanical aids (including time and money constraints) it is important that mechanical aids be employed only where the data which they can contribute are essential to addressing the study questions.

The use of highly advanced mechanical aids poses some serious technological and methodological problems. The technological problems for sound recording devices include such considerations, viz., equipment expense, choice between reel-to-reel and cassette tapes, selection of microphone type (e.g., wireless, wired; boom microphones; concealed versus visible microphones), location of microphones and whether tape recorders should be located in (or outside of) the setting being observed. With videotaping equipment, similar considerations apply, as well as others such as the number of cameras to use (e.g., one stationary, one mobile), the number of personnel needed to attend to the equipment, and the problem of damage to the equipment and the time needed to repair it or secure replacements. (Of course, a school setting is dynamic and the school term goes on while equipment is being repaired. If the scope of the study were to examine trends in code-switching behavior, a "back-up" data collection approach must be ready or serious data attrition may occur.)

On the methodological side, the use of mechanical aids raises questions of: (a) intrusiveness of such equipment and how it effects the behavior observed (children tend to overlook their having to wear wireless microphones after a while), (b) how the

data from the mechanical aids are to be compatibly integrated with the ethnographer's notes, and (c) how the recording of data by mechanical aids is to be consistently performed on different sites if more than one site is involved in the research project.

Ethical and legalistic issues are also raised by the use of mechanical aids. For example, how are individuals' identities on sound and videotapes to be kept confidential? How can the researcher control access to material on tapes in order to prevent its misuse, i.e., for purposes other than those for which it was collected? Scrambling devices, encrypting procedures and written agreements may be necessary. A fuller form of raw data documentation should also be supplied when (and if) the raw tapes/films/protocols are released.

The answers to these technological, methodological, and ethical questions will depend on factors such as the theoretical perspective of the ethnographers, the goals of the study, and the funding and duration of the research. One rule of thumb which has been invoked by many researchers may be summed up in the mnemonic acronym offered by Professor Robert Carrasco, KISS ("Keep It Simple, Stupid"). That is, only employ as much technology in carrying out the research as is essential and can be handled by the researchers involved. Again, a well-chosen approach is much more effective in the long run than a complex one.

Other types of data collection aids such as questionnaires, observational schedules and open-ended interviews have frequently been used by ethnographers following preliminary data collection and analysis. These types of data collection devices appear to be particularly useful in "fleshing-out" or enriching the data base on particular points. That is, once a particular behavioral pattern has been observed, e.g., a bilingual student responding to a question from the teacher in English with an answer in his/her native language, then an open-ended interview could be conducted with the teacher in order to uncover any previous instances of this behavior, and the frequency and contexts in which it occurs. Structured, multiple-choice instruments also could be designed based on the earlier ethnographic information.

Further, the data reduction task for handling ethnographic material is substantial. This task is described below.

4.7 Data Handling, Management, Storage, and Retrieval

Data from an ethnographic study of bilingual education consist basically of (a) the ethnographer's field notes on a classroom or other site domain and the subsequent narrative document he/she produces from them, and (b) all other available written

materials which may relate to and provide additional background information on an observation, e.g., an extra copy of a handout used in class. The ethnographer's on-site observation and note-taking forms the backbone of the ethnographic field record, even wnen mechanical recording aids are used. The essential procedure is to attempt to describe on paper the events and behaviors taking place within his/her view quickly and comprehensively, trying to record both behavior and the context in which it occurs. Of course an ethnographer's view may be narrowed or focused by a consciously-held theoretical perspective. A common practice of classroom ethnographers is to enter in their field notes at periodic intervals the actual time when observed events and behaviors occur, since such time references are invaluable in synchonizing all other data gathered from the same situation by other means.

Once field notes are completed, the general practice is to re-write rough field notes into fuller, readable narrative form. This procedure is likely to consume about twice the time of the original observation. This is preferably done as soon as possible after an observation, e.g., the evening of the same day in order to complete the ethnographic record with its richness fresh in one's memory. Depending on the classroom ethnographer's purpose and theoretical perspective, a great variety of other, more conventional data may be collected and related to the basic ethnographic record, e.g., questionnaire data, interview data, test data, as well as various kinds of informational or educational documents used at a classroom site. The latter could include lesson plans, homework assignments, etc. All of these other kinds of records supplement and complement the basic observational records, and as such can potentially yield a better understanding of what has been observed. That is, they can be used in forming hunches, in formulating preliminary hypotheses, and in suggesting ways to confirm hypotheses through further participant observation.

Videotape and all other mechanical recording aids when used in ethnographic studies should be used to supplement, not replace participant observation. Of course, videotape, film, and other devices have the great advantage of capturing a much greater range of behaviors and interactions in a moving audiovisual field and also of making a permanent, repeatable record of such events. However, these purely mechanical records are of limited usefulness if the ethnographer does not continue to make written records while such aids are being used. The ethnographer's written records (and his/her notation of actual time) are essential to provide a broader, interpretative context for the mechanically-recorded sounds and images. This is the case because the ethnographer views the same events in a situation from a different physical perspective, yet can focus attention on what appears to be most significant at the moment in the

situation directly before him/her and the camera. Eventually, as a step toward indexing and coding, the ethnographer is likely to find it useful to superimpose the actual time line from his/her field notes onto the actual videofilm. By closely re-constructing the activities observed and videotaped in the same time frame, and by meshing all other data gathered, the ethnographer can re-assemble much of the original event for a more careful and extended examination.

The coding of ethnographic data clearly requires that one have, or has committed one' self to a theoretical framework as to how to best segment the flow of behavior seen by the ethnographer and the videocamera. There will be obvious boundaries in events, e.g., endings and beginnings of classes but within the class boundaries other units will not be obvious. Here a theory is essential as a tentative guide for discovering boundaries within units, which may contain in turn smaller units, etc. Such a hierarchical approach has been used by Erickson, Carrasco,* and Shultz in their work.

The handling, processing and analysis of large bodies of ethnographic narrative, and quantities of sound and videotape can be very time consuming, costly, and laborious. In order to ease this burden, many researchers have turned to computer coding and indexing of ethnographic information for storage, retrieval and analytic purposes. There are two primary problems involved here. Cost is a major factor. The cost of computer time purchase, disk space rental, or interactive (or remote) terminal time sharing of computer equipment can be very high where large, complex data sets are involved which require multiple data analyses. This is also true of the costs of computer data base systems analysts and scientific programmers. A series of data base design, software, and systems resources decisions need to be made. The second issue is theoretical or methodological. Any form of coding or indexing presupposes a categorization of the data. Such a categorization also presumes that the data has already been submitted to a taxonomic analysis (Spradley 1979) which has provided a set of data categories deemed relevant to the culture under investigation. If such an analysis has not been carried out, the indexing and coding of the raw data runs a very high risk of sorting the data into categories which have little or no relevance to the data and destroy the integrity and richness of the ethnographic record. This only compounds, rather than simplifying, the data analysis. If subsequent taxonomic analysis of the data revealed that the relevant categories are other than those which were used for data indexing and coding, the indexing and coding must be seriously modified, a process which can be laborious. This would seriously hamper more intensive reanalysis, and any future (or concurrent) secondary data analysis by other investigators.

*See, for example: Carrasco, R. The Communicative Competence of a Bilingual Child. Unpublished manuscript, Harvard University, 1980.

However, once the levels and units of coding become apparent after extended preliminary analysis, and after substantial amounts of data have been collected, the problem of retrieval become crucial. At the simplest level, the ethnographer requires that each separate ethnographic record be easily located and retrieved, along with any other written materials which aid in its analysis and interpretation. This can obviously take the form of an ordinary filing system. At the next level of complexity, it would be desirable to have a retrieval system which produced quickly all instances of a unit of behavior at a specific level of analysis and which would be built into the coding system. Retrieval systems for the data from multi-sites and multi-ethnographers obviously must go to a much higher level of sophistication and complexity, particularly since different sites may be the basis of studies using different theoretical perspectives. Their data would be coded accordingly. This might occur with focussed substudies of Asian language sites, pull-out vs. nonpull-out sites, or Native American sites which have little written curriculum materials. Current generations of computers appear to have the power to accomplish this type of file merge, hierarchical record data retrieval task. However, the software for such retrieval is limited and is in an intermediate state of development. In the event that a computer-based data retrieval system can be developed or adapted for large-scale ethnographic studies, it would appear necessary that an extensive "debugging cycle" for such systems is needed before all data are committed to them and analysis commenced.

4.8 Data Analysis, Interpretation, and Synthesis

In matters of data analysis, interpretation, and synthesis, ethnographic inquiry differs sharply from the practices, designs, and conventions, and use of statistical aids in quantitative studies. For example, the process of analysis in ethnography is apt to be an extended one, beginning with on-site preliminary analyses of behaviors just observed, continuing as field notes are re-written in narrative form, progressing as an analytic framework is applied to more and more data as it is collected, bringing to bear the theoretical insights and techniques of various disciplines or by using the inputs of a participant "insider perspective." Also, this occurs as one's theoretical orientation become more sharply defined by data and as one begins to receive suggestions for analysis from the data coding an retrieval system. From this point, ethnographic inquiry can probably find a place for more sophisticated, powerful types of analysis, e.g., path analysis used by Jacob (1979). This extended analytic process, therefore, moves from hunches to grounded hypotheses to confirmed hypotheses. The latter stages of analysis have a potential for moving out of the bounds of ethnography, and into

more conventional quantitative, experimental and quasi-experimental studies, albeit on a much sounder basis than if one directly began with such methodologies.

Major central foci in collecting ethnographic data are on (a) behavior and interaction, and (b) on the contexts in which such behavior and interaction occur. The focus on events in context is very much reflected in the type of analysis performed in ethnographic studies. The ethnographer essentially asks, "What types of behavior occur in different contexts?" and attempts to form descriptive rules for behavior which are context-specific (somewhat like variable rules in sociolinguistics). In the end one may discover the rules are incorrect because the "behavior" was not the same behavior or because contexts were not differentiated. New rules, then, are warranted and should be attempted to explain for the data.

Every ethnographic data analysis must confront the problem of having the proper unit of analysis for that issue. In great measure, as we have seen, this is closely dictated by one's theoretical orientation and one's reason for doing an ethnographic study. An ethnographer generally will strive to discover a unit of analysis which can usefully be applied to the "emic" or "insider view" of the behavior under study. He/she can be greatly assisted in this by utilizing insider participants as co-researchers, e.g., having a teacher analyze a videofilm of her class, explaining what was going on from her point of view. An extensive ethnographic data analysis will likely require early formulations of unit of analysis which will almost certainly be reformulated later in modified or new units, ones that better explain the data (the goal of scientific inquiry anyway).

Large-scale ethnographic data from multiple sites and multiple ethnographers generally will result in data that can be treated comparatively. Such sites will have been selected so as to maximize the variation present in all sites. In such circumstances data cannot be directly compared since it was preselected to vary greatly -- but rather the patterns, forms, and configurations must be compared in terms of <u>function</u>. For example, a teacher in the United States calling on someone by name in class requires a verbal response, while this same action by a teacher in many Spanish-speaking countries would call for a student to stand and then respond. Thus, the pattern is different although the function is similar.

The comparative approach to large-scale ethnographic data is geared to discover the forms, patterns, and configurations and their functions which are both cultural-site specific and general or universal. The discovery of such universals in bilingual education would obviously be a noteworthy one, which

could be used to achieve better understanding and to improving bilingual education for a variety of audiences in the field.

There appears to be a great variety of techniques, concepts, and procedures, from a variety of disciplines, that can be applied to the analysis of ethnographic data. In particular, this includes the discovery procedures that linguists use to reveal the structure of language and that cultural anthropologists use to gain insight into the cultural life of a group. No doubt still other techniques could be applied from the other social sciences (See Mitchell 1980, forthcoming, for examples of such techniques).

It appears that the application of such analyses to ethnographic data provides only the most meager of grounds for making causal or correlational inferences. Forms of path analysis have been suggested as a way of identifying potential major causal agents operating within a set of ethnographic data. In addition, the ethnographer can, like anyone else in every day life, operate with the "pre-scientific" notion of cause that is geared primarily to actions occurring in short-term duration, i.e., noting in the same observation an event that happens and its consequences. Repeated observation of such events and time-bound consequences certainly may suggest hypotheses to be confirmed by other methods.

4.9 Joint Application of Ethnographic and Quantitative Approaches

Whether the investigator uses ethnographic and qualitative methods in a study of bilingual education really depends on what that individual wants to study and what research questions she/he hopes to answer. At a very general level of theory there appears to be no inherent conflict between ethnographic and quantitative approaches. Both purport to address themselves to phonemena, the central concern of science. However, their conceptualizations and approaches to phenomena differ sharply. Much of the publicized conflict and controversy between the two appears to be a matter of disciplinary provincialism and excessive reliance on highly specialized quantitative techniques.

It would appear that ethnographic and quantitative approaches could be combined in ethnographic studies in at least three ways. First, ethnographic study can serve as a prelude to quantitative study. That is, ethnographic method can discover forms, patterns, structures, and configurations of behavior and interaction, as well as their functions, and test out hypotheses about these in a preliminary fashion. Quantitative research can begin where ethnographic methods concluded and attempt to reformulate research questions and variables in a more rigorous manner, using appropriate designs, provided of course that variables identified by ethnographic research can be reliably and

validly measured with suitable instruments. This latter provision is a substantial one, and it probably explains why such a transition from qualitative to quantitative research does not occur frequently or smoothly. A special instance of this approach was that of Jacob (1979) who used both qualitative and quantitative methods in a recursive fashion, each method for its own merits.

Secondly, ethnographic and quantitative methods can be used concurrently in the same study, with a methodological separation of the two methods. This practice commonly occurs in most ethnographic research in bilingual classrooms. Here the participant observation data and mechanically recorded data remain the primary focus and the quantitative data a secondary focus. The latter are used in obtaining a better understanding of the larger contexts of the study, e.g., the school and community. Such data are useful in making choices in purposive or probability sampling designs. They may also be useful in suggesting additional things to look for in ethnographic study or in identifying hypotheses that may be explored and confirmed by further ethnographic research. In this instance, quantitative methods are clearly the tool of ethnographic methods.

Thirdly, ethnographic and quantitative methods may be merged and used concurrently, in investigating common research questions. Most practitioners appear to hold the view that such uses of the two methods are beset with difficulties and hold little promise of fruitful inquiry. Because of the implications of this possibility, an extended illustration from descriptive linguistics may be useful in clarifying the antagonism between the ethnographic and quantitative paradigms. A skilled linguist working in the field with an unknown informant can generally elicit from the informant material to provide a detailed phonetic transcription of the informant's speech and derive an almost complete phonological (i.e., emic) analysis of the informant's speech in a few hours or perhaps days. He/she will also collect additional data bearing on vocabulary, semantics, morphology, syntax, kinesics, and paralanguage, suspecting that these data will be useful in further linguistic analysis. In a real sense, the descriptive linguist will discover and describe, and do so rather quickly, the significant units of speech (phonemes) which characterizes the informant's language. Errors of analysis and transcription will be made but these can be corrected rather quickly and easily as compared to other data. Counting or any kinds of quantification plays little or no role in this descriptive procedure. At most, the descriptive linguist might tabulate similar sound segments which look "suspicious" and may be manifestations of the same sound unit. At some later point in such an analysis, linguistic units such as words might be identified which may be worthy of being counted.

Even if the quantitative analyst were given sound spectrographic records -- the physically most complete record of speech sounds -- which consist of absolute frequencies, pitches, and amplitudes of the data used, the quantitative analysis would still have a very dubious, if not impossible, task to perform if he wanted to conduct a phonological analysis. At most, she/he would classify sounds in terms of their physical properties. His/her classification may resemble in some case the classification of sounds by the descriptive linguist (e.g., so many stops, so many nasals, etc.). However, he/she would be unable to isolate the functional sound units of the language in question. This is because he/she lacks knowledge of the native speaker's unconscious perceptual and articulatory organization of his/her own language.

In contrast, the descriptive linguist succeeds in this matter, because of training and prior experience, but also because he/she uses various types of participant observer techniques. The linguist attempts to master on site the sounds and sound patterns of the informant's language, repeating words and phrases after the informant and receiving feedback ("you're still not saying it the way we say it"). He/she forms hypotheses about which sounds are in contrast (which make for difference in meaning, e.g. ham vs. hem vs. him) or which are not. He/she forms sometimes elaborate hypotheses about which sounds are the same to the native's ear and have predictable contextual variants. For some variations in sounds, he/she may conclude that they are conditioned by non-linguistic contexts or factors, and the explanation of these would have to be sought outside of linguistic behavior. The descriptive linguist would also bring to bear prior knowledge that suggest that phonological systems tend to be symmetrical in various ways. Thus, if he/she found a prominent gap in the sound system evolving under analysis, he/she would elicit additional information from the informant, hoping to fill that gap; usually this can be done.

A concurrent, merged ethnographic and quantitative research study would probably be unproductive, and the reason for this lies in the fact that the two methods basically have paradigms which are antagonistic to each other. This fundamental difference would plague a study from its planning stages, through its implementation, and finally to its analysis, interpretation and synthesis and conclusions. The present state of science does not permit these two methods to be closely integrated into a single paradigm. However, the methods "need" each other, and this paper therefore has set forth a number of ways that the two methods can be used to complement one another and strengthen each other's approach.

4.10 Reporting of Findings

Ethnographic research presents certain rather unique problems with respect to presenting its results. Traditionally, the ethnographic narrative has been the research report. However, because of its narrative style and length (good ethnographic narrative reporting can easily yield texts numbering in the thousands of pages), such a report format poses serious difficulties to those who might wish to rapidly assimilate the study findings. "Executive summaries" are unsuitable formats. There are, however, other reporting formats for ethnographic research which do not seriously distort the information. In cases where sound or videotapes were made in the data collection process, portions of these may be used in reporting the findings of the research. In some cases, information may be abstracted, condensed or otherwise summarized from portions of the ethnographic narrative in order to facilitate reader access. Another suggestion when reporting ethnographic information dealing with the frequency of particular behaviors in particular contexts is to use a format similar to that used by sociolinguists for reporting variable linguistic phenomena. This format known as the variable rule, weighs the frequency of occurrence of a particular phenomenon in a particular environment against its frequency of occurrence in other environments. For example, an ethnographer might note that a Spanish/English bilingual student:

- Always speaks English with the teacher when answering questions from the teacher (whether the questions are in English or Spanish);
- Frequently asks questions of the teacher in English, but also asks occasionally in Spanish;
- Uses English and Spanish about equally in general conversations with the teacher during class;
- Uses mostly Spanish, but occasionally English, in holding conversations with the teacher in the classroom after class is over; and
- Uses exclusively Spanish in talking to the teacher outside of the classroom. This information could then be presented in a variable rule format such as the following:

Student A verbal behavior $\longrightarrow$ English / with teacher

$$\left\{\begin{array}{l} !\text{answer questions} \\ \alpha\text{asks questions} \\ \beta\text{discourse during class} \\ \gamma\text{discourse after class} \\ \sim\text{discourse outside classroom} \end{array}\right\}$$

where the arrow (⟶) represents "becomes," the slash (/) represents "in the environment of," the brackets or braces contain a disjunctively ordered set, the exclamation mark means "exclusively," the tilde means "never," and the Greek letter variables represent percentages of the time greater than zero but less than the total number of observed times. The ordering of the environments within the braces is from most frequent to least frequent. Absolute or relative frequency values could replace the Greek letter variables if the appropriate quantitative data were available. Such a format does more than just summarize the data. It also provides information on the direction in which the results of the research are generalizable. That is, there is a greater probability that the observed behavior will occur in new situations in the contexts noted as more frequent than in those marked as less frequent. The variable rule merely summarizes this information.

Various other devices for condensing ethnographic information exist. The choices made among the alternatives when reporting on ethnographic research depend very much on the audience to which the report is addressed. While fellow ethnographers may be perfectly willing to wade through pages of narrative in order to determine the results of the research, administrators at funding agencies may be more willing to read succinct summaries of key information. Since ethnographic narratives frequently tend to be somewhat tedious to read, a report of ethnographic findings to the public at large might well profit from the use of photographs and stills taken from videotapings, and the use of more focused, attention getting, or absorbing prose. If the report is aimed at legislators or other policymakers whose time for absorbing the information is severely limited, one might wish to make greater use of videotapes, succinctly condensed summaries, and various descriptive devices (such as graphical statistics or the variable rule format). Whatever the report style used, communicating relevant findings must assume high priority for ethnographic studies.

4.11 Conclusion

This chapter has demonstrated that ethnographic methods have rapidly become established as a new and significant research paradigm for bilingual education research, and for the social sciences generally. The application of ethnographic methods in studies of bilingual education appears to be both appropriate and promising. Ethnographic method is particularly well-suited to the current phenomena of bilingual-bicultural education in the United States, in ways that quantitative methods are not suited.

As has become clear in the preceding discussion, there is no one definitive way of conducting ethnographic research in

bilingual education. Choices must be made at every step of the research, from choosing a theoretical framework and delimiting the scope of the investigation, to the selection and training of ethnographers, the selection of sites, and the choices of research aids and forms of analysis. These choices are to an extent hierarchical and implicational. That is, the choice of theory and scope will focus and in some ways restrict the options as to training of ethnographers and selection of sites. The choice of theory and the selection of sites for conducting the research will further restrict the possibilities for research aids and applicable forms of analysis. One may say that there is an evolving logic of ethnographic method in bilingual education research arising from the experience of researchers in this field.

Notwithstanding this characterization of the applications of ethnographic methods, large-scale studies are likely to be beset with many conceptual and methodological difficulties, as well as with a great number of practical matters relating to logistics, research management, costs, personnel, access to sites, etc. In such studies fairly reasonable compromises in dealing with these issues have been found. Of course this is also true of large-scale quasi-experimental studies which attempt: (1) systematic data collection over diverse sites and (2) aggregation of findings which use the local project as the unit of analysis.

Ethnographic methods have frequently been contrasted, often in a controversial way, with the other commonly used research paradigm, viz., the quantitative, experimental and quasi-experimental methods. This controversy has been stated to be between "qualitative" and "quantitative" modes of inquiry or knowing. More generally, the controversy is said to be about "humanistic" vs. "natural science" approaches to inquiry. This controversy appears healthy and methodologically productive. Ethnographic methods provide a useful and complementary alternative to traditional social science and educational research methodology. It appears suited to capturing and preserving the richness of observational data, while at the same time providing for the discovery of new dimensions and variables in human behavior and interaction. Quantitative-experimental/quasi-experimental methods still must be relied on for generalizability and causal inferences, which are needed by policy makers, as well as by practitioners in bilingual education. Ethnographic methods are clearly applicable to field or naturalistic setttings, whereas quantitative methods may more readily apply to situations which provide for manipulability. However, it should not be forgotten that both methodologies have a firm place in the study of behavior and interaction in bilingual education settings.

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APPENDICES

1. Attendees at the Conference: Current Issues in Applying Ethnographic Methods to Bilingual Classroom Research (June 24-25, 1980).

2. Conference Agenda: Current Issues in Applying Ethnographic Methods to Bilingual Classroom Research.

3. Conference Goals.

4. Inventory of Variables Relating to Bilingual Classrooms (from Mackey, 1976).

APPENDIX 1

ATTENDEES AT THE CONFERENCE:

CURRENT ISSUES IN APPLYING ETHNOGRAPHIC METHODS TO BILINGUAL CLASSROOM RESEARCH

June 24 - June 25, 1980

Held at Development Associates, Inc., Arlington, Virginia

Participants:

Professor Esteban Arvizu	California State University, Sacramento
Dr. Stephen Cahir	Center for Applied Linguistics
Dr. Rene Cardenas	Development Associates, Inc.
Professor Robert Carrasco	Harvard University
Dr. Edward Cervenka	Development Associates, Inc.
Mr. Peter Davis	Development Associates, Inc.
Dr. Milton Goldsamt	Development Associates, Inc.
Dr. Robert Goodrich	Abt Associates Inc.
Dr. Evelyn Jacob	Center for Applied Linguistics
Dr. Jose Llanes	Abt Associates Inc.
Ms. Elizabeth Maxwell	Development Associates, Inc.
Professor Hugh Mehan	University of California, San Diego
Dr. Sarah Nieves-Squires	Abt Associates Inc.
Dr. Blair Rudes	Development Associates, Inc.
Professor Jeffrey Shultz	University of Cincinnati

Observers:

Dr. Mae Chu-Chang	National Institute of Education
Mr. Gilbert Garcia	Office of Bilingual Education and Minority Language Affairs
Dr. Steven Martinez	Administration for Children, Youth and Families
Dr. Dorothy Waggoner	National Center for Educational Statistics

APPENDIX 2

CONFERENCE AGENDA

CURRENT ISSUES IN APPLYING ETHNOGRAPHIC METHODS TO BILINGUAL CLASSROOM RESEARCH

Tuesday, June 24 - Wednesday, June 25, 1980

Conference Room
Third Floor
Development Associates, Inc.
2924 Columbia Pike
Arlington, Virginia 22204

TUESDAY

8:45	Coffee and Danish
9:15	Greetings Peter B. Davis (Development Associates, Inc.) Robert L. Goodrich (Abt Associates, Inc.) Mae Chu-Chang (National Institute of Education) Introduction of Attendees Administrative Information - Milton R. Goldsamt (DA) Conference Background Scope of the Planning Research Study; Role of Sub-contractor - Robert L. Goodrich (Abt) Role of Ethnographic Methods - Blair A. Rudes (DA) Statement of Conference Goals - Edward J. Cervenka (DA)
10:15	Coffee Break
10:30	Session I: Ethnographic Methods - applications in a large scale study of bilingual education classrooms: issues and uses.
12:00	LUNCH - Group Luncheon
1:00	Session II: Ethnographic Methods - degree of adherence to principles of the method; ethical considerations; problems involved in expediting the research while maintaining validity of the data.
2:15	Coffee Break

2:30 Session III: Ethnographic Methods - maximizing comparability of data collected by multiple ethnographers at multiple sites; comparability of data from one project with others.

4:00 Review of Conference Discussions Thus Far - Edward J. Cervenka (DA) and Blair A. Rudes (DA)

5:00 Wine and Cheese Reception for Conference Attendees and Invited Staff of Development Associates, Inc.

WEDNESDAY

9:00 Coffee and Danish

9:30 Session IV: Instruments for Data Collection - technical problems and intrusiveness involved in the use of mechanical aids (e.g., videotaping, sound recording equipment, etc.); role and place of other types of data collection instruments such as checklists and questionnaires in ethnographic research.

10:30 Coffee Break

10:45 Session V: Data Reduction Approaches and Analytic Instruments - coding frameworks; preferred choices among the types of quantitative and advanced qualitative (i.e., beyond domain and taxonomic) techniques for producing relevant results; use of computers for data storage and analysis.

12:00 LUNCH - Individual Arrangements

1:00 Session VI: Ethnographic and Quantitative Methods - how to most effectively, efficiently and productively combine the two; advantages and disadvantages of combining the two; potential criticisms of the various approaches.

3:30 Synthesis: Conclusions and unresolved problems - Edward J. Cervenka (DA) Blair A. Rudes (DA) Milton R. Goldsamt (DA)

4:00 Farewell and Concluding Remarks - Robert L. Goodrich (Abt)

4:15 Adjournment, End of Conference - Milton R. Goldsamt (DA)

Appendix 3
CONFERENCE GOALS
(Phrased as Questions)

CURRENT ISSUES IN APPLYING ETHNOGRAPHIC METHODS
TO BILINGUAL CLASSROOM RESEARCH

Tuesday, June 24 - Wednesday, June 25, 1980

Development Associates, Inc.
2924 Columbia Pike
Arlington, Virginia 22204

> "The conference situation is designed as one to permit the participants to act as whole individuals, using all their senses as they seldom do in the narrower, more specialized contexts of other forms of professional and academic life."
>
> --Margaret Mead

Definition

1. What definition (or at least description) can we give for "ethnographic method" particularly as this term applies to research studies outside of the field of anthropology proper?

General Concerns

2. What are, in general, the major, critical issues (problems) in applying ethnographic methods to large-scale studies of bilingual education in the United States?

3. What modifications, if any, in current ethnographic methods are necessary if it is to be applied to studies of bilingual classroom settings?

4. What are the potential ethnical problems likely to be encountered in applying ethnographic methods in bilingual classroom settings and what are some of the criteria for the solution of such problems?

Research Management

5. What are the most effective ways to plan and manage large-scale ethnographic research studies so that they can be implemented with minimal sacrifice of validity?

6. What pitfalls can be anticipated in conducting large-scale ethnographic studies of bilingual education? How do these compare with the pitfalls of conducting quantitative, experimental or quasi-experimental studies?

7. What are the economic and other costs, in general terms, of doing ethnographic studies as compared with other kinds of research similar in scope?

8. How does one select, train, assign to site and supervise bilingual classroom ethnographers so that their observational and recording skills remain of consistent, high quality during the life of a study?

Conceptual Concerns

9. What are the best ways to maximize the comparability of ethnographic data collected by multiple ethnographers at multiple field sites?

10. To what extent should observations in bilingual classrooms be directed or focused, at least at some point during an ethnographic study?

Data Collection and Recording

11. What is the role and place of mechanical recording aids in ethnographic research in bilingual classroom settings?

12. What technical problems can be anticipated in using mechanical aids in bilingual classroom settings and what are the best solutions to such problems?

13. What methodological problems (e.g., intrusiveness) can be anticipated in using mechanical aids in bilingual classroom settings and what are the best solutions to such problems?

14. What role and place do all other types of data collection procedures and instrumentation have in ethnographic studies of bilingual education (questionnaires, tests, document review, etc.)?

Data Handling, Storage and Retrieval

15. What coding and data handling techniques should be employed, or developed if not already available, for ethnographic studies of bilingual classroom instruction?

16. How feasible is it to develop a computer-based data retrieval system for ethnographic data obtained in bilingual classrooms?

Analysis, Interpretation and Synthesis

17. What is required of ethnographic research in bilingual classroom settings in order to assure adequate reliability of data and generalizibility of results?

18. What are the preferred approaches for analyzing, interpreting, and synthesizing ethnographic data from bilingual classrooms?

19. Given that ethnographic research in the social sciences is most often perceived as a prelude to quantitative investigations, how can one best merge these two approaches in a single, unified study of bilingual classroom instruction?

20. To what extent, if any, does the "totality" of local cultures need to be brought to bear on the interpretation of bilingual classroom ethnographic data (and on any conclusions drawn from these data)?

21. What can ethnographic research, either alone or in combination with other research methodologies, contribute to the making of causal inferences about bilingual instruction?

APPENDIX 4

INVENTORY OF VARIABLES RELATING TO BILINGUAL CLASSROOMS
(from Mackey 1976, pp. 142-145; translated by B.A. Rudes)

(1) The student

a) his/her age
b) birthplace
c) where he/she has lived
d) schools attended
e) years at each school
f) the family milieu

1 - income
2 - education
3 - social mobility
4 - educational aspirations
5 - geographic mobility

g) the language(s) of the home

1 - stability (or change)
2 - degree of use
3 - linguistic competence
4 - ethnic attitudes
5 - trips abroad
6 - available books, magazines, newspapers, etc.
7 - linguistic behavior of visitors

h) linguistic behavior of student at home

1 - his/her linguistic impressions

i - television
ii - radio
iii - classes
iv - movies and theatre

2 - oral language use

i - with parents
ii - with brother(s) and sister(s)
iii - with others

i) his/her attitudes

1 - ethnic attitudes
2 - attitudes toward school
3 - attitudes toward elders

j) his/her linguistic abilities

1 - ways of learning
2 - ability to understand
3 - ability to express him/herself

k) psychological profile

(2) His/her social milieu

a) the neighborhood of the student

1 - its social character
2 - proportion of each language, the respective economic status of these languages
3 - proportion of bilingual homes and their economic status
4 - proportion of «others» and their economic status

b) linguistic character of the neighborhood

1 - type of speech or of dialect of each language
2 - other languages or dialects
3 - degree of interference in normal language use

(3) His/her student milieu

a) geographic location and student population of the school

b) linguistic groups

1 - percentage and varieties (language of the home)
2 - percentage and kinds of bilinguals

c) spontaneous (unmonitored) linguistic behavior

1 - interpersonal usage
2 - group (team) usage

d) the grouping of students

1 - criteria for grouping

i - by language
ii - by age
iii - by degree of comprehension of the other language

2 - number of groups
3 - population of the groups
4 - number of instructors per group and the function of each
5 - the language of interaction of each group
6 - the norms of success for each group

e) the wishes of and collaboration by student organizations of the two languages

(4) The teachers

a) their linguistic behavior

1 - proportion of instruction in their native language
2 - proportion of instruction in their second language
3 - proportion in the two languages (percentage of alternation)

b) their linguistic ability

1 - in the native language
2 - in the second language

c) their professional competence

1 - years of teaching
2 - in-service training
3 - years of experience
4 - training and experience in bilingual education
5 - experience with students at the same age level
6 - professional degrees
7 - dedication
8 - flexibility

d) their teaching methods

1 - learning sequencing
2 - team teaching
3 - methods and proportion of linguistic correction
4 - the use of pictures and audiovisual techniques
5 - interaction

e) attitudes and awareness of goals

(5) Textbooks and teaching materials

a) textbooks (in each language)

b) subtitled and sound movies (in each language)

c) laboratory tapes (in each language)

(6) Syllabi

a) subjects taught in one language

b) subjects taught in the other language

c) subjects taught in both languages

(7) The structure of instruction

a) kinds of groupings

b) kinds of presentation

1 - only in one language
2 - in one language with systematic repetition in the other
3 - controlled alternation
4 - free alternation

c) kinds and contents of school supervision

d) ways in which articulated

e) language courses

f) student counselors

(8) Status of the languages and dialects

a) political status

b) economic status

c) cultural status

d) linguistic similarity